

WinWin

Telenor **Global ambitions** **local impact**

STC: A unique power
in IT services

TeliaSonera & IoT
Already ahead but only
just beginning

Intel dives into IoT

SAP: Enabler of
Industry 4.0



Scan for mobile reading





LET THE CLOUD HELP YOU RESPOND TO COMPETITIVE BUSINESS PRESSURES WITH EASE

Unleash the power of the Cloud and tap into the full potential of IT
with Huawei's FusionSphere Cloud operating system

Huawei FusionSphere brings the future of Cloud computing technology here today. FusionSphere integrates with OpenStack architecture, aligns with developing industry standards, and fuses IT infrastructures with Cloud services to help you optimize IT resources, accelerate business, and capitalize on new opportunities!

For more information, please visit e.huawei.com

Innovative ICT Building a Better Connected World



Scan for
solution
details



WinWin

Hear what operators want to share in person, see how peers succeed in a fierce marketplace, and delve into their secrets to success.

At *WinWin*, it's all about success.

Sponsor

Huawei Technologies Co., Ltd.

Publisher

Huawei Digital Marketing Dept

Consultants

Eric Xu, Ken Hu, Guo Ping, William Xu
Kevin Zhang, Zhang Shunmao

Editor-in-Chief

Sally Gao (sally@huawei.com)

Editors

Linda Xu, Julia Yao, Jason Patterson
Mi Xueping, Xue Hua, Cao Zhihui
Pan Tao, Chen Yuhong

Art Editor

Zhou Shumin

Contributors

Colin Chen, Wang Fa, Gu Daju, Wu Wenjie
Li Lei, ZongYang Zhao, James Li

E-mail: HWtech@huawei.com

Tel: +86 755 89241255, 89241660

Fax: +86 755 89241674

Address: H1, Huawei Industrial Base,
Bantian, Longgang, Shenzhen 518129, China

Publication Registration No.:

Yue B No.10148

Copyright © Huawei Technologies Co., Ltd. 2015.

All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Technologies Co., Ltd.

Disclaimer

The contents of this document are for information purpose only, and provided "as is". Except as required by applicable laws, no warranties of any kind, either express or implied, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose, are made in relation to contents of this document. To the maximum extent permitted by applicable law, in no case shall Huawei Technologies Co., Ltd be liable for any special, incidental, indirect, or consequential damages, or lost profits, business, revenue, data, goodwill or anticipated savings arising out of or in connection with any use of this document.

For electronic version and subscription,
please visit www.huawei.com/winwin



IoT: Shared resource, shared responsibility

The sharing economy is alive & thriving, with PricewaterhouseCoopers (PwC) expecting it to grow from USD15 billion in 2014 to roughly USD335 billion by 2025. The convenience and efficiency it delivers makes our lives better. Connectivity has made it possible, but the flagbearers of the sharing economy so far, such as Uber and Airbnb, have depended largely on connecting people. The next stage will depend on connecting things, and this will further erode many of the conventional burdens of ownership.

An Internet of Vehicles (IoV) may make the ownership of personal vehicles, which sit unused for the vast majority of each day, obsolete. The Internet of Things (IoT) is already eliminating ownership of things that tend to depreciate, such as Rolls Royce jet engines. And while a jet engine isn't really shared, the data its various connected sensors generate can be, and that is the true potential of the IoT. The anonymized data that a connected toothbrush generates won't simply be of use to the manufacturer and the user. It could be of use to doctors, scientists, policymakers, entrepreneurs, and many others, with the benefits extending far beyond the economic to the societal as well. It would truly be a Better Connected World.

Today, public and private sector leaders are pushing full-speed ahead with the IoT. Huawei anticipates 100 billion connected devices and an economic value of USD2 trillion by 2025. IoT and smart manufacturing agendas are being advanced in Asia, Europe, and the U.S. All revolve around cyber-physical systems, which will comprise a fourth industrial revolution characterized by highly-digitized, Internetized, and self-organized production.

For the IoT to reach its potential, the world must embrace a new phase of development characterized by total connection and open collaboration, with the sharing economy already shifting our mindset in this direction. However, the challenges of connecting industries are enormous, and perhaps more onerous than it has been with connecting people. Each industry has its own culture, language, and assumptions. Multiply that by the number of regulators that each industry has across the world, and you can start to get an idea of how diverse the IoT will be. Large-scale commercialization requires an extensive ecosystem involving device vendors, telecoms, ICT vendors, software developers, research institutes, and governments. The joint investment and innovation of all parties is a must. Huawei is one of them, and we are actively participating in and promoting the establishment of IoT standards. We are cooperating with the likes of Mercedes-Benz, Audi, and Dongfeng Motor to facilitate implementation of the IoV, and with industry chain partners such as Intel, SAP, Vodafone, TeliaSonera, and Haier to promote growth of the IoT ecosystem. Together, a Better Connected World will be a shared one.

Sally Gao, Editor-in-Chief



08/2015
www.huawei.com
Issue 23

WHAT'S INSIDE

GOON

Voices from Industry

01 Telenor: Global ambitions, local impact



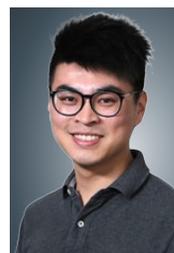
Telenor's roots are in Europe, but its strategic ambitions are universal – efficient operations, loved by customers, and Internet for all. Its head of European operations, Kjell Morten Johnsen, recently sat down with *WinWin* to discuss these three priorities, the operator's challenges in Europe, and its transformation plan to overcome them.

05 Intel dives into IoT



IoT is still nascent & faces numerous hurdles. Intel is aggressively expanding its IoT footprint and has launched a platform for creating an interoperable ecosystem. Brian McCarson, Senior System Architect & Senior Principal Engineer, outlines this platform's features, applications, and the state of the ecosystem in general.

07 Treebear: China's leader in commercial Wi-Fi



Wi-Fi is a network access portal where companies can develop customized services and precision marketing. Hua Luke, CMO and founder of Hangzhou's Treebear Network Company Ltd., recently shared their secrets to Wi-Fi success with *WinWin*.

TENTS

Perspectives

11 Benchmarking digital economy transformation



Huawei has identified the investment targets that a country should focus on in order to get the most “bang” for their ICT investment buck. Learn more about them, and about who is ahead and who is behind in the digital economic race.

14 Mobile video advertising: A major revenue opportunity for operators

19 China Pacific Insurance goes digital

Tao of Business

21 SAP: Enabler of Industry 4.0



The global IoT market is projected to reach USD3.04 trillion by 2020, with 30 billion devices connected. Dr. Li Ruicheng, Senior VP at SAP as well as head of its China Research Institute, recently discussed the profound changes that this may bring to technologies and the industries they serve.

25 Making the NPS connection: A model for E2E CEM

29 Making the NPS connection: Improving customer perception

Winners

33 STC: A unique power in IT services

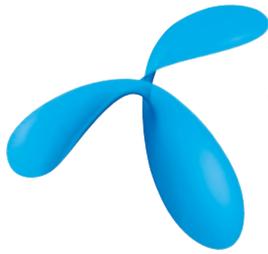
According to MarketsandMarkets, telecom IT services market will be worth over USD230 billion by 2019. Saudi Telecom Company (STC) has made great breakthroughs in this market in areas such as IT infrastructure, applications, and business modeling. Dr. Tariq M. Enaya, Senior Vice President of STC Enterprise Business Unit, has the details.

37 Hubei Mobile’s cloud video strategy: Real-time video in the 4G era

41 MTN Cyprus: Success through sharing

43 Sichuan Telecom: Broadband leadership via 4K

47 TeliaSonera & IoT: Already ahead but only just beginning



telenor

Global ambitions, local impact



Scan for mobile reading

Telenor's roots are in Europe, but its strategic ambitions are universal – efficient operations, loved by customers, and Internet for all. It's head of European operations, Kjell Morten Johnsen, recently sat down with *WinWin* to discuss these three priorities, the operator's challenges in Europe, and its transformation plan to overcome them.

By Jason Patterson



Telenor headquarters

Telenor Group took in some USD13 billion in revenue in 2014 (6% growth y/y), spanning 186 million mobile subscriptions in six Asian and seven European markets (not counting its stake in VimpelCom), with the European certainly the more competitive – four mobile operators per market, 14 million people per country (less than some cities in Asia), 125% penetration, two-thirds of the world's MVNO's present; with all of this adding up to the only mobile market where revenues are in decline. But Telenor EVP of Europe Kjell Morten Johnsen is surprisingly upbeat

on the state of things in his region. “We have had very good development in Norway, especially over the last 12 months. We see Europe stabilizing. We see some growth coming in there, also. So the overall picture has been fairly benign. We have benefitted from that.”

However, Johnsen would temper this somewhat when the topic turned to regulation in Europe, “The development that we see now is, of course, very challenging in terms of the regulatory environment in Europe. I think that this, to some extent, goes back to the fact that Europe has been in a difficult economic situation. Governments have been very ‘short-



“ We have had very good development in Norway, especially over the last 12 months. We see Europe stabilizing. We see some growth there. The overall picture has been fairly benign. We have benefitted from that. ”

— Kjell Morten Johnsen, Head of Telenor European operations



Europe has been in a difficult economic situation. Governments have been very “short-term.” They’re focused on raising cash rather than developing their economy. What we need in Europe is more investment in infrastructure. We are seriously at risk of lagging behind.



term.’ They’re focused on raising cash rather than developing their economy. And obviously, what we need in Europe is more development of LTE, of getting more technology out there. And more investment in infrastructure, because now we are seriously at a risk of lagging behind. Operators have to be able to build scale to do that, but also we need to see governments not only focusing on getting the maximum for their spectrum, but also on how they can encourage people to invest into the economy, which again creates jobs and more activity in the economy.”

Building scale has been on a lot of minds lately in Europe – a fragmented market where the top three carriers combined would only qualify as number three in a market like the U.S. When asked as to what Telenor is doing to build scale, Johnsen stated, “We are now trying to work to build more scale through our joint venture (with TeliaSonera) in Denmark and through our different partnerships – network sharing in Sweden, Denmark, and Hungary. The initiatives that we do to build scale with our shared services in Common Operation. So, all these things are positive for our development, but tricky sometimes from a regulatory point of view.”

Optimus Prime?

Building scale will certainly help, but it isn’t enough. User consumption habits are transforming, and Telenor is transforming to adapt. This is taking the shape of a project Telenor has dubbed Optimus Prime (the leader of the good side in the *Transformers* franchise). When asked for the details, Johnsen stated, “Optimus Prime is our name for a business transformation process that’s going on. We have been good at creating agnostic networks, efficient networks. Now the time has come to clean up the IT stack. The legacy that was set up in the 90’s and

early 2000’s are not set up for delivering data and services for 2016. We just have to fix it now. It is a big task where we want to reduce the number of price plans by maybe 70-80%. We want to take away 70-80% of the products. And we also want to completely overhaul our business rules so that we take away as much complexity as possible, and become much more nimble so that we can integrate services quickly, together with partners, in the future, rather than update our IT stack once or twice a year.”

Digital retail

Optimus Prime is intended to automate a lot of complex process, and future-proof Telenor’s technology against shifting customer trends. But according to Telenor, these are only two out of the five simultaneous goals that need to be achieved in a market in order to stay competitive. The others are simplified governance, convergence/modularity, and omni-channel service. The endgame for all this transformation is what Telenor calls “digital retail” of e-services where “offerings are only limited by Telenor’s ability to know what customers want” and “telecom services are just the initial offering.” How does Telenor intend to “know what customers want?” Big Data analytics.

An example of such digital retail is Telenor’s mobile banking arm in Serbia, called Telenor Banka. Launched in 2014, Telenor Banka is Telenor’s first wholly-owned financial institution, and a “fully online bank” that offers multi-currency accounting & exchange, foreign exchange, contactless debit card, and more, through any connected screen. But this is just the present.

For the future, Telenor envisions a lot of the ordinary household products that we buy in a one-time fashion becoming services that we pay for over time, to the tune of some 30 billion connected objects by 2020. This might

include your bathroom scale becoming your home health analysis station, or a connected basketball that sends tutorials & analysis via the cloud to your smartphone. The possibilities are endless with the IoT.

The big picture

In 2014, Telenor laid out three group-wide strategic goals – efficient operations, loved by customers, and Internet for all.

Efficient operations

Telenor is working to achieve efficiency through both scale and resource sharing (common operations). One such project has involved combining operations in three Central and Eastern European (CEE) markets – Hungary, Serbia, and Montenegro. According to Telenor, these networks featured best-in-class quality before their combination. Now that they are together, Telenor expects a 35-to-55% increase in cash flow by the end of next year, a 20% decrease in cost base starting from the same time, and information security to be a key competitive advantage.

But when asked to comment, Johnsen didn't seem terribly concerned with the numbers. For him, "I think that when we take the outside-in view, focusing on what we are going to deliver and how, and then designing the platform in an efficient way, efficient operations for me is about having clarity of thought in terms of where you are going and then designing your business around that. It is not about saving pennies here & there. It's about fundamentally reshaping the way you run your business around the customer needs."

Loved by customers

In line with the aforementioned Telenor notion that products are in fact becoming services, their focus here is on boosting after-sales sentiment. When asked to elaborate, Johnsen said, "When it comes to 'loved by customers,' this is much more about the relevance of our business. How we compete inside the industry and how we contribute to making our industry compete with other players outside our industry – OTTs and others. This is very much a brick-by-brick challenge. We are building IT systems that are meant for 2015 and 2016, rather than delivering voice services in the year 2000. We have been doing well on the networks. Now is the time for the IT systems, so that we are easier to relate to for customers. And again, the measurement of that is whether we are able to deliver on our NPS ambition to be #1."

Telenor sees that aforementioned relevance that Johnsen mentioned as the result of delivering something that customers truly value, with this achieved through insight instead of guesswork, via any channel, and with "empathy" (a word one rarely finds in a telco slideshow).

Internet for all

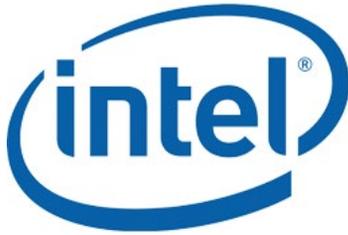
Only seven million out of Telenor's 186 million subscribers are in developed markets, and the digital divide is massive in some of the developing markets in which it operates. Bangladesh and Pakistan rank 49 and 50 (respectively) out of 50 on the Huawei Global Connectivity Index (GCI), with India also ranking in the bottom 10. Much needs to be done.

Telenor's strategy for "Internet for all" is to drive down the cost of terminals, offer the services that the newly connected would want (usually third party) and monetize later through upsales, roaming, and the like. But this is just the minutiae. When asked about the big picture, Johnsen would state, "The 'Internet for all' ambition comes naturally to Telenor. We have invested, at an early stage, in several emerging markets. And that was primarily to drive voice penetration, and messaging. Now we get 3G and 4G that we are counting increasingly on. And then it's not about having coverage for voice & messaging anymore. It's about delivering Internet, and delivering Internet out in all the countries in which we operate is a way to significantly contribute to economic growth. It is about making people participants in the new digital economy, rather than being spectators. And of course, it has some democratic elements about being able to use the information that is out there. So 'Internet for all' also goes very well with our having the stated ambition of having a positive local impact where we operate."

A strong commitment

As to Telenor's partnership with Huawei, Johnsen stated, "When I visited Shenzhen the first time, in 2010, and had a nice time meeting Ren Zhengfei and Ken Hu and others, I got a very strong commitment. We were planning to do a swap in Serbia, and I was the CEO there at the time. I got that commitment. We went ahead with it. And it became a success. We have now had a very good cooperation also on swapping our infrastructure in Bulgaria. I'm glad to see that it has worked out very, very well. So, of course, going forward there will be areas where we will do more with Huawei. I think that we have moved much more towards a partnership, which I think was the intention." 

Editor: Julia yao.haifei@huawei.com



dives into IoT



Scan for mobile reading

The Internet of Things (IoT) is still nascent and faces numerous hurdles. Intel is focusing on aggressively expanding its IoT footprint and has launched a platform for establishing an interoperable IoT ecosystem. Brian McC Carson, Senior System Architect & Senior Principal Engineer of Intel's Internet of Things Group (IoTG), outlines this platform's features, applications, and the state of the ecosystem in general.

By Linda Xu

Addressing an urgent need

WinWin: At the end of 2014, Intel unveiled its IoT platform to coordinate and manage the connectivity and security of networked devices. Can you briefly introduce it?

Brian McC Carson: The Intel IoT platform has a number of outstanding features, which I think may make a very competitive offering in the marketplace. The first is that Intel promotes complete end-to-end security at both the hardware and software level. Second, Intel's IoT platform is designed with a building-block approach to IoT, so that it can interoperate through open standards with other ecosystem partners like Huawei to be able to go to market together and promote security, interoperability and manageability of end-to-end IoT solutions.

WinWin: What kind of impact will this platform bring to the entire IoT industry?

McC Carson: We're working closely with some of the largest corporations in the world to make sure that the way the Intel IoT platform is structured promotes interoperability through open standards and works seamlessly with a variety of ecosystem partners' ingredients, so you could easily connect to a variety of different third-party clouds. Through the Intel IoT platform, you could integrate with a variety of different companies' sensors. If a partner company chooses to cooperate with third-party developers through RESTful APIs, they can

use their devices, hardware and software assets in cooperation with the IoT platform as well. In addition, you have a broad ecosystem through consortiums like the Industrial Internet Consortium (IIC), and the Open Interconnect Consortium, where you literally have hundreds of the world's largest companies coming together to try to build reference architectures that will promote interoperability and improve time-to-market in the IoT marketplace across a variety of different market segments. Hundreds of other companies that have joined these consortia are creating an ecosystem to identify what are the right standards we need and what are the ways that we can make IoT deliver the promises that everyone is expecting of USD20 trillion of revenue by the year 2020. And we are designing the Intel IoT platform to work closely with those reference architectures that are coming out of those consortia and being standardized.

WinWin: Can you share with us any success applications of Intel's IoT platform?

McC Carson: One of the most exciting are the breakthroughs in transportation with fleet management. We can work with companies that are in the business of managing large fleets of vehicles, whether they are taxi cabs or large industrial equipment transportation vehicles. We use our IoT platform to help businesses enhance fuel economy, improve the time it takes to deliver goods, and engage with drivers in new ways to make them feel like they're a part of the way the business operates.

Other areas are in building management. We can help building management companies monitor how the heating ventilation and cooling equipment operate in buildings, and optimize the maintenance and service of those units to improve the efficiency of how they operate. Depending on the number of occupants coming into a building, you can use only as much energy as you need to keep those occupants comfortable, and maximize the efficiency when you get off that unit by shutting it off rather than just doing a traditional time-based schedule.

Ecosystem efforts

WinWin: As IoT has pressing issues of security, connectivity, data processing, analysis and manageability, what kind of technology and service ecosystems are needed?

McCarson: There are a number of breakthroughs for the ecosystem in security manageability and data interoperability for IoT. Intel is able to provide a few key technologies like whitelisting and identity protection in those areas. You can have identity protection on devices where each chip itself has its own unique ID. As soon as a chip comes alive in an IoT ecosystem, you know exactly whose device that is. Since you can't change that device ID, rather than having to guess what that device is, you know exactly which ones are yours, which can help improve the security and manageability of those devices. Those are just a couple of examples of ways to accelerate the scale and time-to-market for IoT.

Lite on our feet

WinWin: At HNC 2015, Huawei showcased its commitment to vigorously developing the IoT market and launched its IoT operating system, LiteOS. What expectations or comments do you have concerning our collaboration in the IoT arena?

McCarson: There're many features about LiteOS that I think are excellent, and the open nature of the OS is very impressive. I like the fact that Huawei is trying to make sure that they're creating an environment that makes it easier for developers to innovate. And when I think about the Open Interconnect Consortium and the way this consortium can try to help with machine-to-machine and peer-to-peer communications, I can see Huawei's LiteOS benefiting from that. When I think of Huawei's technologies and the collaborative ecosystem that Huawei has developed and the technologies that Intel can bring to market with Huawei, I see so much opportunity for growth for both companies and the entire ecosystem, and that it's exciting for me. [www.intel.com](#)

Editor: Jason jason.patterson@huawei.com



“ There're many features about LiteOS that I think are excellent, and the open nature of the OS is very impressive. I like the fact that Huawei is trying to make sure that they're creating an environment that makes it easier for developers to innovate. ”

— Brian McCarson, Senior System Architect & Senior Principal Engineer of Intel IoTG



Treebear

China's leader in commercial Wi-Fi



Scan for mobile reading

Wi-Fi is a network access portal that breeds endless commercial opportunities where companies can develop customized services and perform precision marketing. Baidu now charges more than a dollar per click for “commercial Wi-Fi” search results. According to iResearch’s 2015 Report on China’s Commercial Wi-Fi Industry, the commercial Wi-Fi market in China will amount to CNY3.26 billion at a growth rate of 77.8% by 2018. Hua Luke, CMO and founder of Treebear Network Company Ltd., in Hangzhou, recently shared their secrets to Wi-Fi success with *WinWin*.

By Linda Xu & Carol Chen

Seizing the next O2O portal

WinWin: Why are so many Internet giants expanding into Wi-Fi?

Hua Luke: Alibaba boasts an all-encompassing online platform, yet it lacks offline business presence. Therefore, the Internet giant resorted to Treebear, which they see as a medium that bridges online and offline (O2O). Tencent has also been seeking offline business channels. It is in urgent need of a partner that can reach offline businesses. Many Internet companies have no offline genes to help

them expand to the O2O industry, worth tens of billions of RMB.

WinWin: While exploring the commercial Wi-Fi market, what challenges has Treebear encountered in terms of price, product performance and investment?

Hua: Since our founding in September 2012, Treebear has grown into one of the biggest Wi-Fi providers in China through continuous R&D, partnerships with other industry players and nationwide channels. Currently our Wi-Fi solutions have been deployed in hundreds of thousands of shops around the country, with iResearch

“ The commercial Wi-Fi industry still has a long way to go before technologies reach a high level. Wi-Fi companies must have dozens or even hundreds of maintenance engineers for quick onsite troubleshooting. This is a costly and inefficient use of talent. ”

— Hua Luke, CMO and founder of Treebear Network Company Ltd.



statistics showing that Treebear has the most Wi-Fi hotspots in China. However, we face many challenges in terms of talent, cost control and technological investment. Treebear was founded by a group of people who originally worked in Internet companies. We had little knowledge of hardware. So we recruited many talented hardware employees last year. The Wi-Fi industry chain is a long one. Take the bottom-layer network, for example; no network can offer consumers high speed and smooth experience alone. The commercial Wi-Fi industry still has a long way to go before technologies reach a high level. Wi-Fi companies must have dozens or even hundreds of maintenance engineers for quick onsite troubleshooting. This is a costly and inefficient use of talent.

A blue ocean market

WinWin: What are the main business models for the commercial Wi-Fi market?

Hua: There are three main business models for Wi-Fi companies. The first is the hardware model. Most companies adopting this model were originally engaged in network O&M. They did not enter the Wi-Fi industry for backend profit, but to improve the added value of their products. Their goal is to sell products to enterprise customers and provide long-term product maintenance. The hardware model is targeted at shopping malls, supermarkets, hotels and chain businesses, which place high demand on Wi-Fi networks. Startup companies can hardly meet their requirements. The three state-owned telcos of China have already deployed hundreds of thousands of Wi-Fi hotspots around the country.

The second is the advertisement model. When users

access a Wi-Fi network, they will receive welcome pages, login ads, initial pages, and recommendations for app download, etc.

The third is the value-added service (VAS) model, which is similar to the one Treebear adopted. In this model, Wi-Fi companies sell Wi-Fi hardware to businesses at cost or extremely low prices. Users will not receive mandatory ads either, but the Wi-Fi providers offer other VAS such as data analysis, WeChat services, and booking & ordering services. Businesses can choose to buy these services on demand, and this model is quite different from the other two in that we provide businesses with wireless service that can promote their business development. Treebear works closely with perhaps more Internet companies than anyone else in the Wi-Fi industry. We are connected to many Internet services, including Alipay, Meituan (China's Groupon) and Baidu Nuomi (another leading provider of group-buying services) and distribute these services through Wi-Fi networks rather than traditional display ads.

WinWin: Businesses can leverage Treebear's Wi-Fi networks for precision marketing. Can you share some successful business practices?

Hua: We've seen success in two areas. One is network coverage; the other is commercial profitability. Our Wi-Fi networks cover many of China's famous business districts, including the Heaven Commercial Street in Xixi, Hangzhou. We worked with Xixi Heaven to distribute Alipay coupons. We can match their Alipay accounts based on their location, Wi-Fi login time and Wi-Fi identity. Treebear is the only Wi-Fi company with access to Alipay data interfaces. We can identify users' consumption level and interests based on their Taobao shopping behaviors.



The commercial Wi-Fi industry chain is a long one that involves carriers, equipment vendors, technical platform providers, Wi-Fi providers, backend carriers, third-party app developers and service providers. No single company can control the industry chain.



Then we will deliver coupons to them catering to their interests. However, the coupon distribution processes and backend logic are still a work in progress.

WinWin: Commercial Wi-Fi hotspots are often derided as “ad distribution routers.” How do you convince users to enjoy free Wi-Fi in a time where we are all troubled by excessive information being forced upon us?

Hua: First, the ads you deliver have to be of a high quality, that pluck strings in the consumers hearts. They have to cater to their interests. Second, you must display ads in an appropriate way. Most ads are displayed on portal pages, which pop-up after users connect to Wi-Fi; 80% of the user experience complaints are related to portal pages, and Treebear works constantly on removing them. We let users decide whether they want a pop-up portal page or not. And what’s more, if users connect to Treebear Wi-Fi via Alipay, no portal pages pop-up at all. We also attempt to deliver other customized information and ads to users so that they can benefit truly from commercial Wi-Fi.

Building a healthy ecosystem

WinWin: What kind of ecosystem is needed for commercial Wi-Fi prosperity?

Hua: The commercial Wi-Fi industry chain is a long one that involves carriers, equipment vendors, technical platform providers, Wi-Fi providers, backend carriers, third-party app developers and service providers. No single company can control the industry chain. At this year’s Treebear Wi-Fi Festival, we established the Wi-Fi Innovation Industry Alliance, of which Huawei

is a member. Together with specialized partners who contribute their own strengths, we can build a healthy and robust Wi-Fi ecosystem.

WinWin: Treebear has a dream to “offer free Wi-Fi to a third of China’s population.” As a company headquartered in a cutting-edge city like Hangzhou, what kinds of efforts have Treebear made in joint collaboration with the governments?

Hua: Last year, the Zhejiang Province Economic and Information Technology Commission coordinated to set up the Zhejiang Wi-Fi Industry Alliance. In the next three years, members will cooperate to open or deploy more than 300,000 wireless access points in Zhejiang Province, covering all cities and key towns (including Hangzhou). As a member of this alliance, Treebear will provide shops and businesses in Zhejiang with rich Wi-Fi services and a powerful Wi-Fi platform. More and more governments wish to provide convenient Wi-Fi services to better serve and manage.

WinWin: What is your expectation of Treebear’s future cooperation with Huawei?

Hua: Treebear is only a three-year-old startup with Internet genes. Huawei, on the other hand, boasts unparalleled strengths in network and hardware. Huawei can supply Treebear with Wi-Fi hardware and technology, allowing us to focus on value operation. Products for commercial Wi-Fi are quite different from those for traditional Wi-Fi. Many hardware vendors, especially chipset makers, encounter a lot of problems in the commercial Wi-Fi arena. This is why we wish to collaborate with Huawei to explore appropriate hardware technologies for commercial Wi-Fi. [www](#)

Editor: Jason jason.patterson@huawei.com

THIS IS A FOOTBALL STADIUM



With broadband that reaches the most remote island, Huawei is turning any chair into an inspired experience at your favorite game. To find out more, visit huawei.com

BUILDING A BETTER CONNECTED WORLD





Benchmarking digital economy transformation

Tide of digital transformation

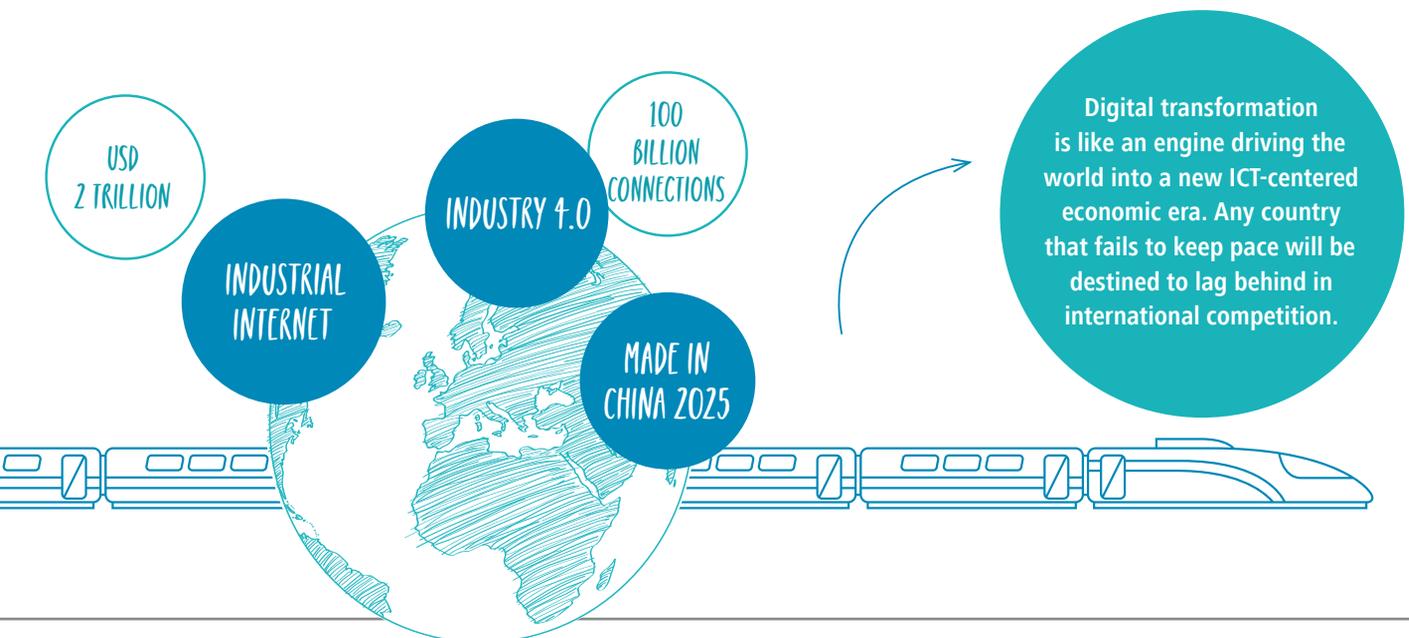
A Better Connected World is emerging. Huawei forecasts that by 2025, there will be 100 billion connections and the global IoT market scale will be worth USD2 trillion. The rapid proliferation of cloud computing, Big Data and analytics, broadband combined with many significant technology changes have created an ICT environment that has enabled the IoT to rise and become one of the key disruptive forces in our economic lifetimes, for countries, industries and individuals alike.

In fact, many countries have already embarked on the race, leveraging ICT technologies to either sustain the competitiveness or go ahead of the curve in the coming connected age. Made in China 2025, Germany's Industry 4.0, and the U.S.-led Industrial Internet – just to name

a few – all represent different approaches for similar ambitions. Digital transformation is like an engine driving the world into a new ICT-centered economic era. Any country that fails to keep pace will be destined to lag behind in international competition.

Transforming into a digital economy requires the participation of all economic players. Connectivity is the key to bridging the physical economy and the digital economy. Peripheral mobile devices and sensors connect with core data centers to form ubiquitous networks, which include network connections, terminal devices, core data centers, and transformation-enabling technologies represented by cloud computing, Big Data, and IoT. ICT technologies for ubiquitous networks form the foundation for transforming into a digital economy.

So how should we evaluate a country's ICT development and its impact on the digital economy? How should we optimize ICT investment to maximize the benefits of the





Scan for mobile reading

All countries are transforming into a digital economy whether they like it or not. It's like a freight train. You need to get on board or get left behind. Countries are under tremendous pressure to accelerate social and economic development and improve their competitiveness. A key element to this process is connectivity.

By Kevin Zhang, Huawei President of Corporate Marketing



digital economy? How can we forecast the development priorities and trends of the digital economy?

Huawei's Global Connectivity Index (GCI) quantifies the connectivity status of different countries and the value provided by transforming into a digital economy from a comprehensive, objective, and scientific perspective. The GCI provides an indicator of which countries are best poised for development and growth, and an ICT planning reference for policymakers looking to embrace the digital economy.

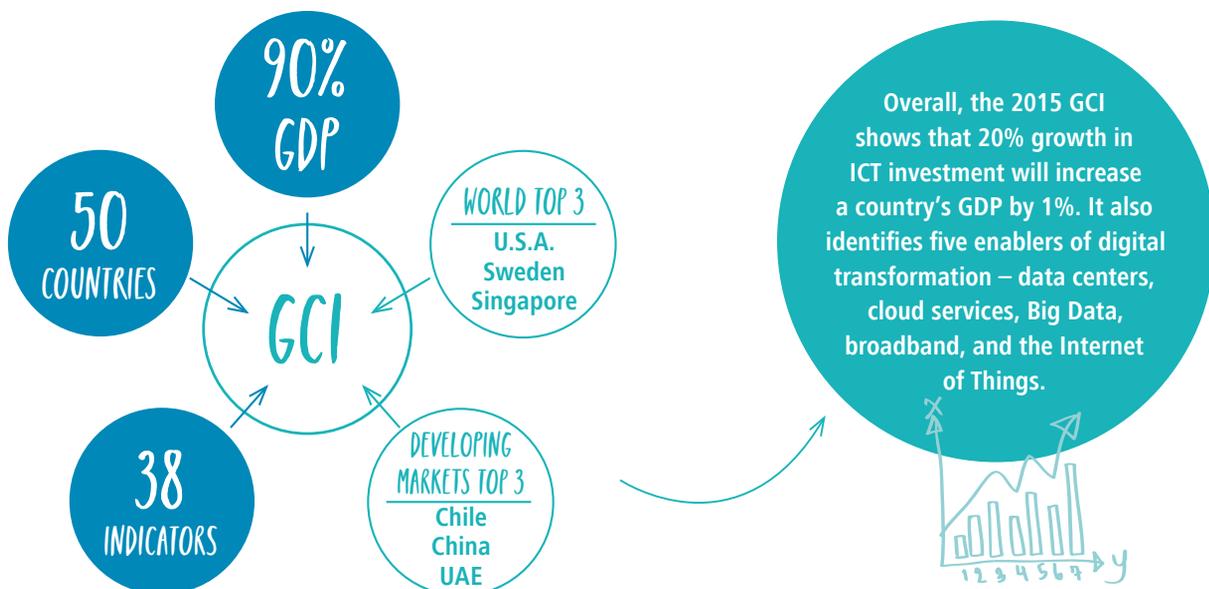
Rankings in the race

The 2015 edition of the GCI sees a more comprehensive and advanced framework and methodology. With double the number of ICT variables and countries analyzed last year, this year's GCI enables the drawing of correlations

needed to establish investment targets for governments and other stakeholders. What distinguishes the GCI from similar indices is a broader definition of connectivity that encompasses networks, computing, and storage, while also emphasizing the non-infrastructure elements of a functional digital economy, such as service demand, and e-commerce activity, etc.

In order for connectivity to reach its full potential it needs to be available, adopted, and provide an inspired experience. In total 38 indicators divided across Supply, Demand, Experience, and Potential were measured, analyzed, and intersected. The findings of this analysis not only validate expected correlations between economic growth and technology investment and adoption, but also reveal some surprising insight around the impact of the five transformation enablers, namely, cloud, IoT, Big Data, broadband, and data center.

The United States ranks the highest among surveyed





Governments should lead the way. They must be more assertive in pushing for development and not just rely on market forces which may not be sufficient or have different priorities. Governments should incorporate tech into infrastructure and services into society at large.



countries, on the strength of robust supply and demand of ICT services, and an advanced state of adoption, with other mature economies such as Sweden, Singapore, Switzerland, and the United Kingdom rounding out the top five. Chile, China, and the United Arab Emirates (UAE) lead the developing markets, with all three ranking in the high teens to low twenties overall. Developing market leaders are characterized by strong mobile adoption and overall access that is often comparable to developed markets, while typically lagging behind in terms of data center investment and other core elements of ICT infrastructure. Data center investment by developed countries is three times that of developing countries, which is the major catalyst of cloud proliferation as “the edge does not exist without the core.”

Overall, the 2015 GCI shows that 20% growth in ICT investment will increase a country’s GDP by 1%. It also identifies five enablers of digital transformation – data centers, cloud services, Big Data, broadband, and the Internet of Things. These technologies represent the targets that stakeholders should focus their investments on in order to most efficiently transform their economies for the digital age.

Mobilizing for transformation

The GCI can be used to help understand at what stage a country is in, how it compares with its peers, and how close it is to breaking out of its stage into a more advanced stage or the risk it has in falling behind. The findings from the GCI can help governments and business leaders navigate the daunting march toward a digitally

transformed economy.

Governments should lead the way. Governments must be more assertive in pushing for development and not just rely mainly on market forces which may not be sufficient or have different priorities. One of the best ways to learn is by having an example, and governments should pave the way for businesses and citizens by incorporating technology into its infrastructure, as well as its services to the society at large. E-government is the major catalyst for promoting mobile applications. Singapore and Canada are good examples of countries where high-level e-government capabilities usually enable remarkable performance in the area of broadband services.

Governments should also further invest in the IoT and Big Data. Every new connection will generate a new data source. Governments and businesses should consider data usage and security to build a trustworthy, transparent, cooperative and open environment for network security.

Talent is crucial for the transforming into a digital economy. Governments and businesses must not delay in developing or attracting the necessary talent so that they can harness the benefits of a digital economy.

The strategy for transforming into a digital economy must be carefully planned and executed. Huawei has full insight into the ICT industry, powerful planning capabilities and global project experience. With our footprint over 100 countries and extensive experience, Huawei actively helps countries seeking digital transformation plan ICT development. We are open to partner with policymakers and enterprise leaders to identify, harness, and create new digital economy opportunities with the aim of Building a Better Connected World. [www.huawei.com](#)

Editor: Jason jason.patterson@huawei.com

Mobile video advertising

A major revenue opportunity for operators



Scan for mobile reading

Operators are looking at ways to monetize the huge growth in mobile video consumption by subscribers. This document provides telecoms and media companies who have launched or are considering launching IP video services a concise summary of the mobile video advertising sector, forecast growth, and relevance to IP-delivered services in terms of potential revenue streams and benefits if an IP service has an integrated mobile video advertising solution.

By Kevin Cochrane





Advertising will be a key, if not the most important revenue stream of an IP video service. It is of strategic importance when launching a service that clients consider the need to ensure that a mobile video advertising solution comes integrated as part of the IP video platform.



A booming market

Mobile advertising reached USD19.3 billion in 2013, a 50% increase on 2012. Current estimates suggest that by 2016, it will account for more than half of Google's total revenues. Mobile advertising is often used as a synonym for mobile marketing but is, in a strict sense, limited to activities making the customers aware of a product. Activities like vouchers, which attract also existing customers, or campaigns to tighten existing customer relationships, are not advertising.

Bryce Marshall, Director of Strategic Services at Knotice, states that mobile advertising is one of the four mobile marketing tactics (with SMS/MMS, mobile web, and applications the others) that are currently more widely adopted by marketers and consumers alike. "While mobile advertising is one of the more complex mobile tactics, mobile ads fall into a couple of primary categories – mobile banners and mobile search. Each is a spinoff of the established online ad channels with virtually the same roster of ad partners creating alternatives for consumers browsing and searching the Internet through a mobile browser."

Mobile is increasingly becoming the preferred means of consuming video content of all genres, forcing advertising brands and their media & creative agencies to target what is both a growing video distribution channel and a highly valuable and hard to reach audience, particularly the younger demographic groups.

Television, whilst still the main deliverer of mass audiences, has been unable to compete with mobile video advertising as the latter provides detailed and precise viewing analytics of who exactly is consuming video content, compared to the traditional, outdated means of TV panel meter audience measurement. Online

video advertising has proven the most effective form of advertising and media agencies are increasingly targeting the audiences that have moved from consuming content online via a PC to their mobile device.

There are a number of mobile video advertising formats that can be used and all mobile video advertising solution providers can offer these. Examples include video banner ads and mobile video pre- & mid-roll bumpers.

Advertising will be a key, if not the most important revenue stream of an IP video service. It is of strategic importance when launching a service that clients consider the need to ensure that a mobile video advertising solution comes integrated as part of the IP video platform.

eyeballs are going online

Adobe's latest video benchmark report estimates that in Q1 2014, viewing of video across OTT devices grew by more than 539% y/y. Mobile was estimated at 10% by Ooyala in January 2014, while eMarketer estimates that the U.S. market alone will reach USD2 billion in value by 2016, a compound annual growth rate of 70%. U.S. digital video advertising revenues will increase more than 40% in 2014, compared to just over 3% growth for TV advertising.

In the U.K., we see that in the first half of 2014, according to PwC, mobile video advertising value increased by 69% to GBP202 million and the number of mobile adverts viewed increased by 196%, making mobile video the fastest growing digital advertising format. Mobile video now accounts for one pound out of every five pounds spent on the Internet.

As more and more U.K. advertising is bought and sold using technical solutions known as programmatic and real-time bidding (RTB) systems, where advertising inventory



Video is particularly suited to mobile and is popular amongst brands that want to recreate the face-to-face contact that is highly valued in-store or in-branch, building brand trust and encouraging consumers to share across social networks and to take action on the content they have seen.



is bought & sold in a bidding process that occurs in real time with split-second decision making, it is unlikely that a telco will have the in-house expertise to administer this process optimally. For telecoms seeking to implement a mobile advertising solution, it is necessary to have a broad understanding of the various market vendors.

Top mobile ad networks

Airpush: Airpush is one of the highest paying mobile ad networks and helps mobile app developers make money with their mobile applications. Airpush supports the Android platform only. Airpush started in 2010 and has become one of the most popular mobile ad networks for Android developers as it claims to pay more than USD10 clicks-per-message (CPM) weekly.

Admob: Admob is operated by Google. Google delivers highly targeted ads in a mobile application, which allows a service provider to generate revenue by displaying high-paying targeted ads on mobile apps. Admob supports almost all mobile operating systems such as Android, iOS and Windows Phone 8.

ADTECH Mobile: One of the largest mobile advertising networks that can help mobile app developers earn money by monetizing their mobile apps. For example a service provider may only wish to show only high-paying targeted ads on their mobile apps to generate more revenue, ADTECH mobile advertising technology can help boost online revenue.

Deeper viewer engagement

Using a combination of sight and sound, a video advert engages the viewer on a deeper level than other forms of advertising and this engagement becomes even greater when experienced on a mobile handset – the personal

screen of the viewer. By creating memorable video adverts that engage and entertain – perhaps through the use of humor or brand storytelling – a real connection can be created between the brand (in this case the operator's brand) and viewer. This is an important consideration for the operator who may be seeking to cross-sell additional services such as messaging, TV, etc.

Direct communication

Using video in mobile advertising leverages the highly personal nature of mobile devices to communicate directly with the consumer in a private, secure environment. Video is particularly suited to mobile and is popular amongst brands that want to recreate the face-to-face contact that is highly valued in-store or in-branch, building brand trust and encouraging consumers to share across social networks and to take action on the content they have seen. This ability to provide a direct link to the in-store experience can be seen in the U.K. retail sector where some 54% of all high-street purchases are now made via handsets.

Autoplay adverts

Video advertising also has the ability to convey a lot of detail quickly. Autoplay adverts use the seconds before the viewer can skip forward to gain attention and deliver the brand message.

Content sharing

The growth of social media has led to a rise in content sharing between friends. Adverts that have funny or unique content and are successful in reaching a certain demographic will quickly go viral amongst like-minded viewers.



Twice as many viewers are likely to click on an entertainment advertisement as those using a non-smartphone device, and 45% are more likely to remember the advertising message as opposed to a message delivered via non-smartphone devices.



Instant purchase

If the advert urges an impulse buy (subscribe to a pay TV service and get 30% off), the viewer is just one touch away from signing up.

Video is going mobile

As premium video viewing moves away from traditional TV to web and mobile consumption, the key lesson for telecoms seeking to attract ad revenues is that major media agencies are increasingly recommending that their advertising clients assign at least 25% of their TV advertising budgets to digital, of which mobile is taking a greater share. Therefore, any IPTV or OTT service offered by a telecom must have a fully integrated video advertising solution integrated into the platform software to help launch personalized, targeted advertising that is of relevance and interest to their subscribers but also generates revenue.

A recent study by Vdopia, a leading provider of mobile video ad solutions, found that across their global customer base of 330 million users, twice as many viewers were likely to click on an entertainment advertisement as those using a non-smartphone device, and 45% were more likely to remember the advertising message as opposed to a message delivered via non-smartphone devices. The study also found that 84% of all mobile adverts used video to convey the ad message.

The lesson here for telecoms is that mobile video advertising offers the perfect medium to upsell additional video content packages to existing and target consumers. Examples are free upgrades to a new TV channel package for a limited period.

An example of how an operator is addressing this issue is Telstra, an Australian operator, who is developing a vertically integrated capability consisting of content, network, video advertising and analytics through a series of acquisitions across the video value chain, including the U.S. video player technology company Ooyala and the premier U.K. video advertising technology company Videoplaza.

Advertising revenues will only increase and of the three main revenue streams generated on IP video platforms (advertising, transactions, and subscriptions), advertising will be the largest and most important means of monetizing a IP service (in some regions).

Case studies

Celtra

Celtra is a U.K.-based mobile video advertising solution provider that enables media agencies, media suppliers and potentially operators with an integrated, scalable multi-platform HTML5 technology for brand advertising on smartphones, tablets and desktops. It is leading the growth of mobile video advertising with groundbreaking in-banner video technology for all devices.

Features of their smart video ad formats include autoplay with smart mute to avoid disrupting the user, continuous video play that makes switching between inline and full-screen seamless, built-in social sharing straight from the banner, rich branding options for logos and calls to action, and responsive design that ensures the video always fits the screen regardless of device. Recent developments include a reduced production time, real-time analytics, and a seamless experience for the viewer.

4OD



Viewers demand personalized viewing experiences. In offering an OTT service to customers, telcos are not only ensuring relevance, they are also building a gateway to the ad revenues now on offer on OTT – a revenue stream that is new and growing exponentially.



4OD is the video-on-demand catch-up TV service from Channel Four (C4), the U.K.'s second largest public service broadcaster. Channel Four was originally set up to cater to niche audiences. For the past twenty years, C4 has been successful in delivering advertising revenues well in excess of its share of total U.K. television viewing. In recent years C4, like other major broadcasters such as the BBC, has had to assess the impact of emerging digital platforms such as OTT on its ability to reach and attract audiences who typically tend to be early adopters of new devices and platforms.

Channel Four was part of an industry-wide initiative to develop catch-up services similar to those used by the BBC iPlayer, and 4OD is their version of the technology, but with a crucial addition of inserted advertising, which allows C4 to give advertisers access to their chosen demographic audience either through program sponsorship or pre- and mid-roll inserted advertising, and C4 has been able to protect to a large degree its share of advertising by offering such access.

The lesson for telcos is that in offering an OTT service to their customers, they are not only ensuring relevance to their customers, they are also building a gateway to the ad revenues that are now on offer on OTT – a revenue stream that is new and growing exponentially.

Key telco considerations & recommendations

Viewers are demanding personalized viewing experiences, including the surrounding advertising. When launching or refreshing an IP video service, advertising will play a central role in both improving the viewer

experience and generating revenues. As mobile advertising increasingly drives transactions, the launch of 4G services will make buying an even faster experience, with consumers expecting what Google terms the Zero Moment principle, where at the point at which the consumer sees an advertisement, they will respond and expect to be able to find the service or product they were exposed to. For an operator, it will be a commercial imperative to not only promote new services and products using mobile video advertising, but enable the user to make an immediate purchase.

Dan Bunyan, manager at PwC has said, “Mobile’s share of the digital ad pie has tripled in two years, accounting for a fifth of total spend, rising to nearly a third of display and over half of social media ads. As 4G becomes more prevalent and phone screens become larger, it will play an even bigger role in driving digital ad spend – particularly video.”

This revenue growth is the opportunity for operators, as they launch OTT services, to increase revenue and to create a virtuous circle of quality content, wrapped by relevant advertising to enhance the viewing experience and deepen the customer relationship. With Big Data, operators will be able to create compelling viewing for their customers and maximize their engagement, and offer highly relevant services based on broadband usage patterns and other relevant data.

Operators should look to ensure that their IP video service incorporates an integrated approach to include high quality content coupled with viewing analytics, metadata, payment mechanisms, as well as video advertising, to create an end-to-end architecture that futureproofs the operator by offering what we term TV over Internet Protocol (TVoIP) – a complete solution. [uvm](#)

Editor: Jason jason.patterson@huawei.com

China Pacific Insurance goes digital



Scan for mobile reading

There is a growing affinity for Big Data in the insurance industry as it looks to improve business processing efficiency, revenue premiums, and marketing precision. Tang Hailong, Network Director of the Infrastructure Operation Department at China Pacific Insurance Company (CPIC), recently discussed how this is manifesting at his company.

By Carol Chen & Linda Xu

Data center construction

WinWin: Surging service traffic has created a digital deluge. What technical challenges has this deluge posed to CPIC's network architecture?

Tang Hailong: CPIC's network architecture faces two challenges. On the one hand, surging application data requires higher network bandwidth, posing a challenge to our existing architecture. On the other, 90% of CPIC's servers have been virtualized. During virtualization, a large number of virtual machines (VMs) must be deployed, with a lot of data migrated, leading to an explosion of east-west traffic that will greatly impact our network architecture. CPIC built a new data center in Chengdu and adopted Huawei's virtualization technologies to address these challenges.

WinWin: What are CPIC's considerations in data center (DC) construction and future development?

Tang: CPIC's first DC is now ten years old. In 2005, we built our first centralized data center in China, but of a small scale. In 2009, we built a new one in Shanghai, and a disaster recovery center the next year. We have now completed the design and planning for our Chengdu data center, which is expected to come into use by the end of this year.

Most DCs for financial institutions are deployed in a centralized way. CPIC plans to build "three data centers in two cities." We have already completed the Shanghai data center and its remote disaster recovery

center in Chengdu. We also plan to add another disaster recovery center in Shanghai, with each recovery center responsible for different tasks. The Chengdu data center will focus on disaster recovery and the development of testing environments. What's more, new virtualization technologies make the Chengdu data center highly scalable, allowing it to quickly respond to Internet application requirements. We position the Chengdu DC as an innovation base, where we will pilot some new Internet application services.

Internet-based mindset

WinWin: The Internet is having an impact on all industries. How is CPIC responding?

Tang: CPIC has been a leading player in the industry in terms of adopting an Internet-based mindset and developing mobile applications. We set up a special insurance sales platform in 2013 that can be installed on mobile devices. Customers can buy insurance products, have their insurance application examined, and claim payments on this platform. In 2014, we started to launch applications on WeChat to sell insurance products more easily and promote our brand image. The official "CPIC E-Service" account is the first platform in our industry to support WeChat payment and provides comprehensive services that cover online quotation, booking, enquiry, payment and information check. Customers can buy car/life/property/travel accident insurance on our WeChat platform in a self-service manner. We have built a website

“

By applying IoT methodology to how customers deal with risk behind the wheel, we could gather the raw data needed to help raise overall profitability, while rewarding less risky customers with discounts and enhancing their value proposition to the consumer.

— Tang Hailong, Network Director of the Infrastructure Operation Department at CPIC

”



called the “Life Insurance Square” (www.601601.com), combining B2C with O2O to offer products and services regarding maternal care, car maintenance, and health care. Therefore, I think CPIC has already gained a head start in integrating insurance with the Internet and we will accelerate this pace.

WinWin: Big Data is a vital insurance asset. How is CPIC leveraging it for precision marketing?

Tang: CPIC offers both property and life insurance. We can sell life insurance to property insurance customers and vice versa. In 2012, CPIC conducted an in-depth analysis of our customers with an aim of cross marketing for property and life insurance, our initial trial of digital transformation. Meanwhile, insurers can use Big Data to improve their overall performance through more accurate pricing, deeper relationships with customers, and more effective and efficient loss prevention. We have so far completed transformations for dozens of programs through precision marketing based on in-depth analysis of customer data.

Leveraging the IoT

WinWin: Forward-thinking insurance firms are realizing that they can increase their profitability and improve risk modeling by investing in the Internet of Things (IoT). What’s CPIC’s angle here?

Tang: The IoT was originally implemented in our property and casualty segment using a concept known

as usage-based insurance for vehicles – as drivers drive, insurers remotely gather data and analyze performance in near real time. The automation of what was once manual tracking allows underwriters to improve pricing and insurers can close claims more quickly and improve loss adjustment ratios. The end result of this process improvement is a positive customer experience.

CPIC learned that by applying an IoT methodology to how customers deal with risk behind the wheel, we could gather the raw data needed to help raise overall profitability, and we could do this while rewarding less risky customers with discounts and enhancing their value proposition to the consumer (roadside assistance, vehicle recovery, vehicle maintenance alerts, etc.). But this was just the beginning.

WinWin: The IoT ecosystem involves countless players. What kind of role does insurance have to play, and how can they play it better?

Tang: The insurance industry will utilize IoT technologies across the entire IoT ecosystem. We can never transform to be an equipment vendor. So I hope more IoT devices can be invented that can be installed in cars or deployed in homes to collect and share customer preferences and better understand group and individual buying behavior. More insightful analytics allow the offering of services and products that customers want on demand. We are eager to build a seamless omnichannel experience using IoT sensors. [www](#)

Editor: Jason jason.patterson@huawei.com

SAP: Enabler of Industry 4.0



Scan for mobile reading

According to IDC, the global Internet of Things (IoT) market is going to reach USD3.04 trillion by 2020, with 30 billion devices connected. Dr. Li Ruicheng, Senior Vice President (SVP) of SAP as well as head of the company's China Research Institute, recently discussed the profound changes that this may bring to technologies and the industries they serve.

By Carol Chen & Linda Xu

China has recently promoted the concepts of “Internet Plus” and Made in China 2025 in order to prompt an upgrade in its industrial structure towards the higher end. In Europe, Germany is actively promoting its Industry 4.0 strategy, while General Electric in the U.S. is embracing the Industrial Internet. All these concepts revolve around cyber-physical systems, making for a fourth industrial revolution characterized by highly-digitized, Internetized, and self-organized production.

IoT: Backbone of Industry 4.0

WinWin: What are the fundamental differences between machine-to-machine communication (M2M) and the IoT?

Li Ruicheng: The IoT connects things to the Internet via information-sensing devices, like radio frequency identification (RFID) and sensors, to realize smart identification and management of all things. Sensors are used to collect data, which are then sent to the cloud for storage and analysis. The analysis results can help businesses make decisions and guide their production and operations. In the past, IoT technologies were not widely adopted due to the high costs of devices such as sensors and RFID chips. But today, device costs have dropped sharply, making massive data collection possible.

M2M gives machines, lathes, and other factory equipment the ability to intelligently communicate so as to support both large-scale and individualized order requests. Orders for different products can be integrated so that they can be manufactured on the same product line. When the





Before the HANA platform, relational databases could hardly support the massive computing of the Big Data era. The computing speed of the HANA platform is almost ten thousand times faster than that of traditional databases.



product line receives an Enterprise Resource Planning (ERP) request specifying how to produce, which component goes where, and what color should be applied, it can perform individualized production. M2M is self-organizing, self-learning, and cooperative & coordinated. This isn't some far-fetched dream. M2M has been successfully implemented in practice.

WinWin: Intelligent sensors and M2M have been hot topics for many years. What are the new features of the IoT in the Industry 4.0 era?

Dr. Li: We are always excited whenever a new technology arrives on the scene, hoping it will bring groundbreaking changes. But our enthusiasm dips over time, and we will approach the new technology in a rational way. This represents a typical technology hype curve created by Gartner. Five years ago, people were very excited about the IoT. Today, after years of innovation and continuous development, IoT-related technologies have become very mature, making Industry 4.0 possible.

Industry 4.0 is not a far-fetched dream. It is real, and it is coming. There are five drivers behind its development. The first driver is the development of M2M technology, which enables lathes and even workshops to self-learn and self-replicate, thereby achieving large-scale flexible production. The second driver is mobile Internet. On the one hand, companies today can collect data anywhere, anytime through the mobile Internet so as to understand customer needs. Customers, on the other hand, can place orders with ease, asking for individualized products from manufacturers. The third is Big Data and cloud computing. Industry 4.0 will usher in a new era of intelligence. When massive amounts of

terminals are connected, there will be massive data, the storage, processing, and analysis of which requires Big Data technologies. And cloud computing is the best way for different stakeholders to connect through a common data platform. The fourth is social media. Social media promotes the development of Industry 4.0 in terms of product design brainstorming and individualized requirements sharing. The last driver is the IoT. SAP believes these five factors will drive us into the era of Industry 4.0 and help improve social productivity.

WinWin: You just mentioned that the IoT is a very broad concept that involves massive data collection and processing. What are the practices of SAP in terms of the latter?

Dr. Li: SAP has a very powerful High-Performance Analytic Appliance (HANA) platform. This computing platform focuses on real-time Big Data analysis and applications. It is revolutionary in that it is both a database and a development platform. Before the HANA platform, relational databases could hardly support the massive computing of the Big Data era. The computing speed of the HANA platform is almost ten thousand times faster than that of traditional databases. Fast Big Data computing is now one of SAP's strategic goals. In our SAP HANA IoT Edition, we integrate key IoT components such as IoT connectors on the HANA platform to support IoT computing. Since different sensors have different standards and involve different communication layers, we use the IoT to connect different devices and sensors to our platform to reconcile the differences. Our platform is open to all partners who can work with each other and build products and solutions based on it.

“

It took 21 days to make a custom motorbike in the past. Now, the SAP Industry 4.0 solution brings it down to just 6 hours. The customer may place an order in the morning, and after half a day, he can drive his dream bike home. Our solution has boosted productivity and delivered huge profits to Harley-Davidson.

”

Going commercial

WinWin: Can you share with us any of SAP's success stories?

Dr. Li: Harley-Davidson, the world-renowned motorbike manufacturer, has many famous customers. SAP cooperates with Harley-Davidson so that the manufacturer can make individualized motorbikes for its high-end customers based on their personalities and images. Meanwhile, high productivity must also be guaranteed for this customized single-batch manufacturing. This sounds like a paradox, yet SAP developed the Industry 4.0 solution based on our HANA platform just to realize highly-efficient customized production. Each motorbike is made of over 1,200 components, which opens the door to unlimited possibilities in terms of component permutation and combination. It took 21 days to make a customized motorbike in the past. Now, the SAP Industry 4.0 solution brings it down to just 6 hours. The customer may place an order in the morning, detailing their specific requirements on the motor engine, color, mirrors, and wheels. After half a day, he can drive his dream motorbike home. Our solution has boosted manufacturing productivity and delivered huge profits to Harley-Davidson.

We also participated in an intelligent logistics project in Hamburg, Germany. In the past, the port of Hamburg was plagued by a serious problem. When too many containers arrived and could not be shipped away in time, the overstocking would exert its toll on both the goods and customers. SAP's Industry 4.0 solution helps arrange ship arrival and loading/unloading time perfectly and optimizes truck scheduling.

The greatest innovative force in Germany is small-

and medium-sized enterprises (SMEs). They are actively employing Industry 4.0 solutions to improve their operating efficiency. SMEs can act fast to adopt flexible systems and solutions in order to achieve intelligent production. In the meantime, many large companies are investing in building an Industry 4.0 ecosystem.

WinWin: In your opinion, in what vertical industries will the IoT be widely applied first?

Dr. Li: “Internet Plus” will be broadly applied to industries with poor industry transparency, lack of industry regulation, and high industry thresholds. It is the best external driving force to address these pain points. In a sense, the healthcare industry is perhaps the area with the highest threshold and most acute problems. I believe IoT technologies will bring great convenience to patients in the future. The IoT will also be widely employed in education and logistics industries. Currently, the logistics industry is a notoriously high-cost area, with resources unevenly matched among goods, drivers, and transportation companies.

WinWin: How will the IoT revolutionize Chinese manufacturing?

Dr. Li: China is a manufacturing giant. We can produce any item in the 39 industrial divisions and 526 categories specified by the UN. However, we still lag behind developed countries in terms of production and design capabilities. Our products don't add any additional value. China may be a manufacturing giant, but we have yet to become a manufacturing powerhouse. With the broad application of IoT technologies, China will establish a close partnership with leading manufacturing countries like Germany. This is a precious opportunity for China to

“

Many device manufacturers are considering leasing equipment to customers while selling services to them, instead of just selling equipment. This shift in profit model is totally possible in the Industry 4.0 era. Some enterprises have already piloted in this respect and garnered considerable profits.

”

upgrade its manufacturing industry.

IoT blurs boundaries

WinWin: The IoT will accommodate players from different backgrounds. How should these players collaborate & cooperate to promote IoT development?

Dr. Li: The IoT is a huge subject. It requires the joint efforts and collaboration of all participants. The IoT needs not only sensors, network infrastructure, software, and devices, but also Big Data analysis, security regulations and policy support. Businesses, vendors, experts, scholars, and governments should work together to cultivate an open IoT ecosystem, which will create more value for customers and stimulate the development of Industry 4.0. Without an open IoT ecosystem, the implementation of Industry 4.0 will encounter numerous obstacles. The industry is currently discussing how to build an open ecosystem with unified technical standards. Otherwise, sensors produced by different vendors cannot interoperate, which will increase production costs and hinder innovation.

WinWin: What do you think of the entry of Internet companies into the IoT?

Dr. Li: Cross-boundary innovation is a future trend. Traditional industries are thinking about leveraging the Internet and IoT to transform their ecosystems and business models. For example, many device manufacturers are considering leasing equipment to customers while selling services to them, instead of just selling equipment. This shift in profit model is totally possible in the Industry 4.0 era. Some enterprises have already piloted in this respect and garnered considerable profits.



Win-win cooperation

WinWin: How can Huawei and SAP work together?

Dr. Li: SAP and Huawei can complement each other. Huawei's strengths lie in hardware while SAP is strong in software. We are both customer-oriented and share similar enterprise culture and values. We can combine our complementary strengths to jointly develop products and solutions such as FusionCube (a converged cloud infrastructure). Huawei and SAP have jointly established an innovation institute recently, focusing mainly on IoT research to develop innovative solutions. We also have built strategic partnership in this area. This is a good beginning. [www.huawei.com](#)

Editor: Jason jason.patterson@huawei.com

Making the NPS connection

A model for E2E CEM



Scan for mobile reading

In the wake of customer experience becoming the top agenda item for many boards, the knotty issue of how to measure it and even knottier issue of how to improve it have emerged. This document looks at the part Net Promoter Score (NPS) has to play in end-to-end customer experience management (E2E CEM), how it can be influenced, and what can be measured in real time to have an impact on it.

By Peter Massam



Start planning

The end-to-end customer experience management (E2E CEM) journey has many touch points externally with many internal processes to support the business. To date, vendors and operators alike have focused on its Operate layer (Figure 1), where order processing, billing, customer operations, technical support all are primary considerations. Point or integrated solutions in this space are fairly mature. For consultants, this space expands necessarily into the other areas of the business, which impact both the customer and the business growth. Solutions in this space are much harder to find.

It is therefore important to highlight which parts of the overall customer journey can contribute positively and negatively to their experience. Equally it is important to measure only what is measurable and can be improved over time, take the corrective actions, and then measure again.

Regular assessment of customer and business-significant metrics is essential in order to put customer experience (CE) at the heart of business, with NPS as its flagship yardstick. Caution needs to be exercised to ensure over-surveying does not distort results and waste resources unnecessarily. What is required is a customer continuity plan that couples together what needs to be fixed currently with future-proofed processes to extend the customer lifecycle management (CLM).



NPS has been challenged and supplemented with a raft of metrics aimed to capture the many aspects of customer experience. While it has its detractors, especially when a small number of customers dominate revenues, it has found favor at the highest levels as the single metric to drive a CE-based culture.



What is E2E CEM?

Although NPS was said in one survey to be very important to 44% of respondents, with 28% more flagging it as important, another survey of 70 global operators conducted in the same year of 2013 said NPS was the last consideration in a list of desirable metrics to assess customer experience. This tells us that NPS is only one in a long list of areas to be assessed. Attractively and deceptively simple, NPS is widely acknowledged to be unactionable, which goes some way to explaining its lowly place on the ladder as the “most difficult” to impact.

From initial attractive claims of an increase in NPS of 12 points being able to double a company’s growth rate (back in 2006), NPS has been questioned, challenged and supplemented with a raft of metrics aimed to capture the many aspects of customer experience.

While it has its detractors, especially when trying to apply it in business-to-business (B2B) scenarios where a small number of large customers may dominate your revenues, it has found favor at the highest levels within service providers as the single metric to drive a CE-based culture. Among these other metrics are some common threads, namely getting the basics right, links to value creation or business outcome, consideration of individual interactions (such as improving the prospect experience), customer perception, customer satisfaction and not least, surprising the customer to make that leap to promoter status.

We are used to talking about CEM in marketing terms, such as the on-boarding customer journey, the perception of service at purchase, insertion of SIM card, welcome greetings, receipt of first bill, and first use of services. These are then handed off seamlessly, in operational terms, to service, network and technical

support, and back to customer care when complaints arise.

E2E CEM extends across many more touch points than this. In order to capture the associated metrics, the acronyms have flowed, all with a slightly different intent and with varying adoption rates by service providers. Among them with their relevant questions are:

Customer Effort Score (CES): “How much effort is it to do business with you?” on a scale of 1-5 (1 being negligible effort and therefore the best). The aim is to reduce effort with a focus on customer service interactions.

Customer Advocacy (CA): “Do you think your company does what’s best for you or what’s best for its income statement?” Aimed equally at employees and customers.

IZO Best Customer Experience (BCX): Survey produced within LATAM across 130 companies in multiple sectors assessing brand, product and service interaction experience.

Net Promoter Score (NPS): Oldest of the metrics. “How likely are you to recommend Brand X to your friends?”

Voice of the Customer (VoC): Takes a basket of metrics from the above with others and selectively links these to return on investment (ROI).

While it has been a struggle to define CE components, the mist is clearing in one or two significant ways. An attempt has been made to combine elements of the customer journey, breaking down customer journeys into unique customer experiences by channel, function and department.

The existence of a framework document helps clarify components for each service provider, who now has points of reference and common terminology at their disposal. It also helps consolidate thoughts on best

“

Subjective assessments lie at the heart of what are becoming the main metrics of an organization. It is therefore entirely natural to start with Customer Perception, improve the service quality in specific locations, and thereby improve the quality of the experience overall.

”

practice when taken together with an approach which relates directly or indirectly to ROI, in order to build a robust business case for such investment in this important area. Creating the tangible from the almost intangible is one of the challenges but it is not insurmountable.

A simple model

Service providers have done much to streamline their organizations and processes. Some have grouped their processes into layers focused on the customer.

Lead to Revenue: Involves customer interaction points that offer, provision and install services to complete the delivery.

Operate: Front-office support given after first use of services, either directly to customers at point of sale (POS), online, or on the phone, and back-office support that maintains and improves systems, networks and customer SLAs.

Retain: Functions designed to keep customers happy or convert unhappy ones, while maintaining or increasing customer perception with attractive, timely and personalized packages that are fresh and innovative.

Service providers (SPs) can adapt and substitute their own key processes or customer-impacting areas into this model. Most vendors provide solutions at the Operate layer to manage systems and are increasingly more customer-focused. Outside of this layer is the preserve of consultants or integrators who rightly focus on the business objectives, strategic and tactical goals, or on the swiftness of new service introduction.

However, there is a growing need to bridge the gap between these layers and players, particularly where an improved-NPS goal has been set or there is a yawning gap between customer perception and the perceived service quality from the SP side.

Subjective assessments lie at the heart of what are becoming the main metrics of an organization. It is therefore entirely natural to start with Customer Perception, improve the service quality in specific locations, and thereby improve the quality of the experience overall. This becomes a lifecycle process of continual improvement, knowing the service quality is in place to meet customer expectations and improve your chances of raising NPS scores.

QoE's part in NPS

In recent years, the term quality of experience (QoE) has been used and devalued as it has been interchangeably used with CEM and almost inextricably linked to the similarly striking quality of service (QoS) label.

While it is true that implementing QoS policies can enhance QoE, it has also had its detractors in some parts of the world where the benefits have been seen to favor third parties more than their competition, thereby transgressing net neutrality principles. QoE is but a small part of what can be used as a much broader term to cover all enhancements to service, customer journey, touch points, online accessibility and much more.

A bad implementation of any of the afore examples will have a negative impact. The other key point from

“

While it is true that implementing QoS policies can enhance QoE, it has also had its detractors in some parts of the world where the benefits have been seen to favor third parties more than their competition, thereby transgressing net neutrality principles.

”

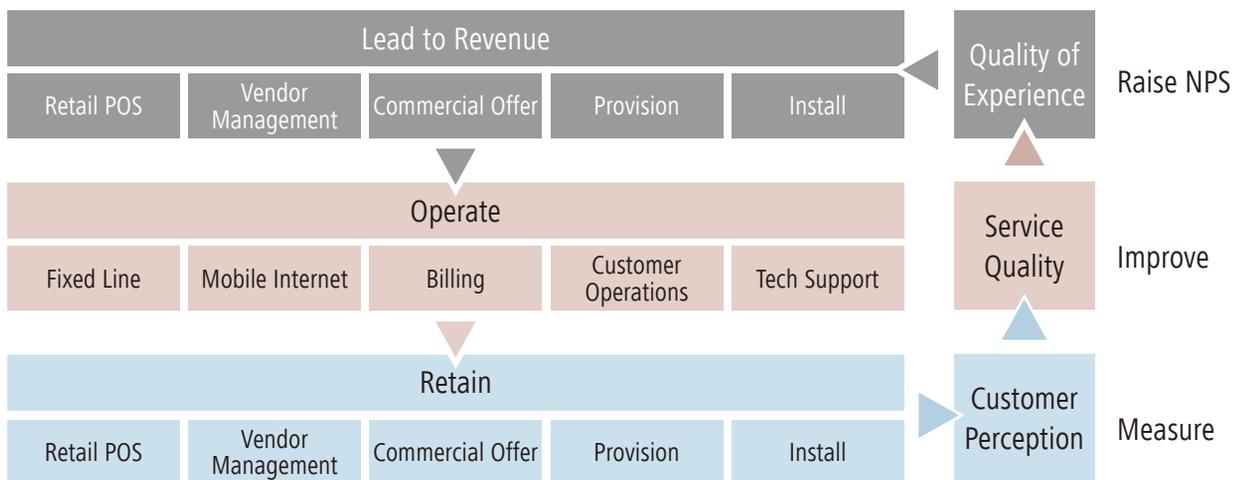


Figure 1 3-layer sample model for applying E2E CEM to organizational processes

above is the need to make more and more decisions based on customer-sourced and filtered data, and that those sources will not all come from the network. Caution must therefore be exercised when combining data sources, especially those containing individual names or billing information, so that privacy laws are not broken.

Some of these additional steps can be taken as part of maintenance activity for existing services, while others are more innovative or bring your customers closer by creating something new. Not everyone likes new, of course, so a high-impact “wow” factor (such as saving the customer money) will need to accompany it in order to have any chance of moving the NPS score up a notch or two.

One thing seems to be clear is that to have a chance

of moving a customer up into the “Promoter” belt, the experience difference needs to be significant; not necessarily stellar, but nonetheless significant. It needs to make customers sit up, take notice and smile. After all, laughter is said to be the best medicine or at least that is this customer’s perception. [www](#)

This article is adapted from Peter Massam’s whitepaper *Making the NPS Connection*. A follow-up article (p. 29) from the same paper will look at how NPS can improve Customer Perception, including an operator case study involving Huawei Consulting.

Editor: Jason jason.patterson@huawei.com

Making the NPS connection

Improving customer perception



Scan for mobile reading

What does NPS tell me about the customer's actual or likely behavior? Can it be linked to business metrics, actual or forecast? If acted upon, will it make the customer's life easier or our services better for the benefit of other customers? All of these questions should be asked when considering customer perception measurement. This article does just that and illustrates a successful case of its improvement.

By Peter Massam



What's the plan?

Getting the basics right has to be high on your list when considering customer perception. It is far too easy to forget or neglect the onboarding procedure. Striving to make it consistent across all channels including partner franchises will make it pleasant to recount to friends.

Measuring customer perception and customer

satisfaction are essential elements of the plan. The types of questions asked and frequency both play their part and must take a balanced approach. So how do you know that these measures once taken have been effective?

It only takes a few steps to make changes in target locations where re-evaluation can take place to confirm that a move in customer satisfaction (CSAT) has occurred, with a reasonable degree of accuracy.

There are three definite steps on this path. First is taking the customer's temperature by starting with customer



To look at customer perception, start with the new customer experience. You need first-hand experience of the services and how they operate today. Placing yourself in your customers' shoes has no better substitute but is infrequently carried out from one year to the next.



perception to identify common areas that affect CE and can be linked to business outcomes or revenue. Second, find the common medicine for a customer group or segment by making improvements to those parts of the customer journey, including but not limited to service quality on the network. Third, find the customized medicine for an individual customer by creating personalized offers or high-impact surprises in services that represent a step change from their current level of service. These “wow” factors can be as simple as having access to data services where none existed previously, improved speeds or performance in their favorite locations, or premium benefits from being part of the service provider family.

Do you feel what I feel?

To look at customer perception, start with the new customer experience. You need first-hand experience of the services and how they operate today. Placing yourself in your customers' shoes has no better substitute but is infrequently carried out from one year to the next. This needs to be applied to all main segments – prepay, post-paid or contract, small or medium enterprise, family package application. Why? Because the basics need to work first. Because each segment may traverse different systems. Because you need to start from a sound base. Care representatives will always be reminded of past history and first-time experience, even when it is not in front of them.

We are reminded of some of these basic facts from the results of a LATAM survey back in Q4 2010. Firstly that a good experience enhances buying intention and loyalty

but that this only happens when customer's expectations are exceeded. So those with a history of good CE will naturally expect it all the time – the fall from grace can be hard to recover from. Equally, simply removing the causes of dissatisfaction is not enough to impact consumer behaviours and decisions. This is sound advice but does not remove the need to put those causes right to start with. So fix what is currently broken.

That takes care of the new customers on days one to thirty during your honeymoon period, but thereafter the imperative is looking at “critical journeys where poor performance puts the client relationship at risk.” This can be as simple as revisiting an interactive voice response (IVR) menu to ensure most urgent needs, like Top Up, are top of the list or to iron out inconsistencies between communications channels after an online launch. This will ensure they are encouraged to stay with you, but that alone will not be enough to move the NPS score in the desired direction.

When to measure

When canvassing for customer perception, timeliness is essential for any particular service experience so as not to distort results as the memory fades over time, but there are other questions on brand and company perception that are best left as “emotion recollected in tranquillity” so that a more balanced view can be taken. One service provider is said to have asked for recollection of a memorable customer journey from the recent past and is conducted every two years. This seems an excessive amount of time

but they could also be perceived as taking the long-term view by their customers.

In general, survey extremes are to be avoided. Those conducted too frequently can promote survey fatigue and result in antagonistic responses and while third-party research companies have undoubted local knowledge, competence and are best-placed to conduct surveys on your behalf, when resorting to phone surveys the partnership needs to go beyond scripting as their voice and attitude reflect directly on your own brand. Satisfaction with the way the survey was handled is advisable to incentivize good delivery rather than just numbers of surveys per day completed.

What to measure

Customer satisfaction surveys definitely hold an established place in the Net Promoter Score hierarchy of influencers and more service providers are being creative with the types of questions and areas scrutinized as they become more familiar with the way of asking them to derive the most useful information. That useful information only becomes really useful business information when linked with financial metrics against a backdrop of what have been called “upload or background variables,” which include tenure, lifetime value (LTV), revenue, purchasing behavior, demographics and segmentation. With solutions now available, these variables can be augmented with device, volume and application usage, preferences and more in an effort to understand each customer more fully.

Determining customer perception pain points now on ever more complex customer journeys lays the foundation for customer continuity planning, which ensures CE across multiple channels. In turn this customer continuity plan will become one of the building blocks of customer lifecycle management (CLM) in the future.

Measures should not assume an ideal or steady-state situation with a customer, where a request for service has been initiated without a hitch. As call centers across the globe will tell us, many of the queries relate to demand failure.

How to measure

When contemplating which metrics to collect, ask yourself the following questions for each metric. Does it touch the customer? Does it tell me more about the customer actual or likely behavior? Can it be linked to business metrics, actual or forecast? If acted upon, will it make the customer's life easier or our services better for the

benefit of other customers?

Measures need to have a balance between the need for simplicity and for specifics. Wider questions on meeting the needs (functional), ease of doing business (likelihood of return) and enjoyment (happiness factor), as proposed in the Customer eXperience (CX) Score, have to juggle with the possibility that parts of the journey were fine but others were not and the resultant score does not tell you which part was not satisfactory.

There are three other caveats to beware of. One is the average score across many customers – the more smoothing that takes place, the less likely you are to get to a resolution which is meaningful. It is far more useful to see an average for individual customers over a longer time period to detect trends and importantly determine tipping points which could prevent churn.

The second is the scale used in these metrics. Inconsistency in these has been recognised as a consideration when trying to correlate between them. NPS is built on a scale of 1-to-10, with others being 1-to-5 or 1-to-7, depending on the policy of dealing with fence-sitters in the middle. Cross-correlation can be difficult between perception metrics, business outcome metrics and operational metrics on the ground and more challenging across multiple channels, so planning that involves all parties is essential at the outset when putting together a data collection strategy and customer continuity plan.

The third is regional differences which occur within a country or region when responding to surveys. Corresponding to the equivalent of a north-south divide, we have seen examples where consistently lower or higher scores can be expected due to climate, historical or cultural differences or general outlook on life. This is where a little local knowledge goes a long way.

There will be a right mix of transactional, business and perception metrics suited for each operator which defines them as a service provider in their country. Some will need to be real-time, especially when immediate feedback on service performance is required; some of the business and marketing metrics are perhaps best left to monthly updates and others on brand and company perception lend themselves more to collection on a semi-annual or annual basis.

The important thing is that once measured, act on it, and update your customers with progress as you would your senior management team. For example, on operational metrics, one progressive service provider is responding to just under half of customer complaints and getting a response rate of well over 50%, which dwarfs most marketing campaign expected-response rates. This kind of proactive customer interaction lays the foundation for a changing relationship which customers can expect from their service providers in the near future.

Case study

The challenges one service provider faced are not uncommon, and were echoed by two other Huawei customers later in the year. Being a significant tier-1 SP, they found themselves with restricted budget, less radio resources than their nearest competitor, and an inexplicable gap between customer perception (low NPS & CSAT scores) and perceived network quality.

Challenges

Lagging behind competitors in network performance and CSAT had drawn attention from the regulator. The only conclusion from official statistics was that mobile broadband (MBB) speed did not translate into MBB satisfaction.

Less spectrum and fewer sites than their main competitor, and significantly less CAPEX, painted a bleak picture. Data revenues were flat, with their competitor pulling away. The gap between NPS/CSAT scores and a reasonably performing network was seen as a symptom of their malaise. Reasons needed to be found so that NPS could start to rise.

Methodology & data collection

Four areas were identified which could gauge the impact on NPS. They were customer perception of service performance (web and video services in particular), customer journeys related to onboarding and first-use, customer experience (real-time CSAT and KQI data after video service use), and network experience (user experience data to validate findings and demonstrate how limited spend does not have to mean limited service).

The methodology, following the customer perception-led approach to raising NPS, relied on taking the customer health in three different ways – manual testing and observation, semi-automated mobility testing, and network-based data collection. Since the latter was not available immediately, Huawei substituted it with local static CSAT data. This gave us an early indication as to where to focus our attention, and at the same time identified target locations for the work.

Four customer journeys were cataloged and scored with summary findings on the basics of buying services (retail experience), first-time-use, balance enquiry and top-up. Semi-automated testing was conducted on-device, with minimal variables in the target locations, and repeated on the same days at the same times.

Solution & results

The requirements for a solution depend largely on the complexity of network experience and the depth needed for doing root cause analysis (RCA), as was the case here. They included on-device testing application, Nastar (a RAN-based data collector & analytics engine), an accurate site planning (ASP) tool, and MR/CHR data (for RCA purposes).

With these solutions, the gaps were identified for both video and web performance in specific locations, which could be targeted for remedial action from the RCA work. A prioritized list of CE improvements was produced, with increasing levels of investment and locations for service performance identified.

Recommendations for network and service improvements were also made which were identified as part of the customer journey analysis. Customer-side KQI and CSAT findings were used both to map service KQIs to throughput KPIs and to set local service benchmarks. These benchmarks were correlated to network experience data to assist in the network planning process to determine where investment is best targeted. The scope of the customer experience work is now planned to be extended to other locations.

The lesson learned

While it has its detractors, NPS has found favor at the highest levels within service providers as the single metric to drive a CE-based culture.

Data collection strategies are many, the scopes broad, but they fall short on the deliver and implement stages so crucial to making a CE difference. A few service providers have sound, regular CSAT monitoring in place collecting data. It is only a few steps to making changes in target locations where re-evaluation can take place to confirm a move in CSAT, with a reasonable degree of accuracy.

Only after a more widespread re-evaluation has happened across many more locations can the NPS level be said to have been influenced by actions on the ground. The changes do not need to be just network-driven, but should encompass as many of the customer journey elements known to cause dissatisfaction (from the CSAT responses) as possible. [www](#)

This article is adapted from Peter Massam's whitepaper *Making the NPS Connection*. A previous article (p. 25) from the same whitepaper looks at how NPS fits into end-to-end customer experience management (E2E CEM).

Editor: Jason jason.patterson@huawei.com

STC

A unique power in IT services



Scan for mobile reading

IT services are becoming an increasingly lucrative market segment as the traditional market saturates. According to MarketsandMarkets, telecom IT services market will be worth over USD230 billion by 2019. Saudi Telecom Company (STC) has made great breakthroughs in this market in areas such as IT infrastructure, applications, and business modeling. Dr. Tariq M. Enaya, Senior Vice President of STC Enterprise Business Unit, recently spared some time to fill us in.

By Julia Yao & Linda Xu

Editor: Jason jason.patterson@huawei.com



“STC owns about 90-to-95% of the connectivity projects of the government and enterprises in Saudi Arabia. That customer base is what makes us unique in terms of enterprise.”

—Dr. Tariq M. Enaya, Senior Vice President of STC Enterprise Business



Enterprise is vital

WinWin: From your perspective, what are telcos' unique advantages in providing enterprise IT services versus Internet Service Providers like Amazon?

Dr. Tariq M. Enaya: I think the best thing about telcos is the customer base, especially in terms of connectivity. For a company like STC, we own about 90-to-95% of the connectivity projects of the government and enterprises in the Kingdom. That customer base is what makes us unique in terms of enterprise. And the services we can add on top of the links that we have comprise the uniqueness of our connectivity power. STC has a unique power there.

I think convergence is going to happen in order for service providers to survive in the next era of IT or of services. Things have to converge in a way that IT becomes, in essence, like power, like water, like other things. And you can only provide that kind of service if you converge towards IT. Also, from being a service provider, your links are going to become a commodity at a certain stage. If you don't introduce and protect your customer base by introducing new services and new technology and other services that add value, then you will lose the customer base at a certain stage.

WinWin: How are you tapping into emerging markets such as BYOD, M2M, and smart cities?

Dr. Enaya: We have lots of applications going on. What we try to focus on right now is to prioritize different things; bring-your-own-device (BYOD) types of things. We do have a couple of services going on with a couple of agencies and the government where BYOD is becoming a security concern for lots of people. If BYOD is implemented in the right way, organizations are protected with their own security systems, before people bring their own devices for interface.

On the other hand, I think additional services where cloud is going to be introduced is another area of improvement we're working on right now. At STC, we have major data centers and major pipes connected to those data centers that allow a lot of people to connect to our applications and data centers much easier than others.

In M2M, we have a lot of requests from the government to manage vehicles, to manage the flow of people. One example is the crowd management of the Hajj. The Hajj is the biggest event in the Islamic world every year. About four million people are in about four square kilometers, and the government has agencies and services to support those Hajjis when they come to Mecca. So there are a lot of applications supporting this and we are part of those for crowd management, healthcare, police services, security, you name it. All the services that human beings would need in that short period of time. Putting a SIM card with every Hajji could mean that Hajji could be monitored. For that Hajji,

“Any healthy organization should have 40% of revenue coming from SMEs. That’s the focus of STC. We were not focusing on enterprise in the past. But a shift in strategy happened. The majority of investments in the next three years will be for enterprise & SMEs.”

you could tap into what language he speaks, what area he is from, what health illness he has, then you can manage the whole flow of people. You can provide the right data at the right time.

SMEs are big business

WinWin: How does STC plan to make breakthroughs in small and medium-sized enterprises (SMEs)?

Dr. Enaya: Any healthy organization should have 40% of revenue coming from SMEs. That’s the focus of STC. We were not focusing on enterprise in the past three years. But a shift in strategy has happened. The majority of investments in the upcoming future, the upcoming three years, is going to be for enterprise and SMEs. SME in Saudi Arabia is a very big business. It’s a big environment, where we have thousands and thousands of stores and businesses that we’re not covering right now. But we are developing joint ventures with government agencies to provide us with requirements for those agencies to be eligible to do business in Saudi Arabia, and bringing those applications required to make life easier to interact with customers.

With SMEs, I think at this stage, we offer proper connectivity and proper agility. We are not so sophisticated yet in terms of our data services or data center services, but we do have a lot of customers right now and we provide them with disaster recovery, hosting services, application services that we provide them through an SaaS

model or through services that make CAPEX spent versus OPEX spent. We make an environment where it’s easier to start up and organize.

I think with SMEs it’s about making business easy. One of our ideas is to have a one-stop shop for them. It’s a target for us; from starting a business to closing a deal. When starting a business, they come to our STC website, and we provide them with government registration, rental, etc. We are going to deliver everything they need, and make it easier for multinational companies to come also to Saudi Arabia to invest and build their capability. It’s not an easy task. But I think it’s a doable task if we have it as a target.

Verticals have a big upside

WinWin: Which vertical industries does STC prioritize?

Dr. Enaya: When you connect the majority of the Kingdom, you are connecting all the verticals in the Kingdom. We connect universities. We connect schools. We connect hospitals. We’re involved in building value-added services in those environments. One of the best examples we have is connecting 20,000 schools in Saudi Arabia. For rural areas, we provide them with wireless services, Internet services, the right information, and also some teleschooling or telepresence types of instruction. We are also in an integrated solution framework with a couple of ministries like the Ministry of Education, where we are trying to build an e-learning environment for them and those



schools. We are going towards different elements of innovation there, where we connect schools and provide the next step of connecting them to the Internet, providing them with a teleschool or e-schooling system that could be utilized. And we connect them also to the applications required by the schools.

From the healthcare perspective, all hospitals in Saudi Arabia are connected, or the majority of them, maybe 95%. Those hospitals also require data services, management services, and security services. We provide security systems to protect them from hacking, protect them from external environments.

And we are trying to adopt new models where we spin off some of our own companies outside, some of our own entities inside STC to go outside to develop and come back better, like multinational companies, to give them more agility to adapt more to those technologies.

One of the things we are very proud of is some of the applications and services that some government agencies, such as the Ministry of Interior, do in Saudi Arabia. The majority of transactions you need for renewal of driver's licenses, passports, exit & entry forms, that you need as an expat happen through the Internet. You don't have to go to the agency any more. You have to authenticate once. Once you authenticate, you are provided with a password and username, and everything is integrated with a unified billing system where you can pay all the fees, even the traffic violations that you have, via the Internet through your bank. That's a unique system that the

government has built. That's a unique way of doing e-transactions. That's an application we introduced.

A trusted ICT partner

WinWin: How do you expect Huawei to assist STC in the vertical market?

Dr. Enaya: Huawei is a great partner that we have, and plays a big role in the network of STC. Huawei is a part of our eLTE network. Many regions in Saudi Arabia use our LTE solutions. We are looking heavily into how we could use that technology in our towers to provide better services to citizens and to the people serving those citizens, or the enterprises serving those citizens.

We look forward to Huawei stepping up in terms of data center base, and how can they help us build data centers that can support us in the future with our consumer business and our enterprise business. Not only this, Huawei is also a mega player in our fiber connectivity projects. They have our transmission units, connecting all the cities together. They are a major contributor to our success. We value the partnership. We are looking to innovate with them on the next level of ICT business.

We do have a couple of initiatives around smart cities with Huawei. One is in the city of Mecca, where we're trying to connect the whole city through cameras and through physical security systems, and through smart solutions to traffic lights, to crowd management, and so on. We are trying to work with them in developing solutions that could help pilgrims make their journey much easier. 

China Mobile Hubei

Real-time cloud video in the 4G era



Scan for mobile reading

Hubei Mobile has piloted real-time video with cloud video communication and cloud surveillance, and succeeded in boosting traffic consumption, improving the data traffic per user per month of 4G users, and raising storage utilization. The project has also driven the growth of the telco's voice, data traffic, and digital services, thereby facilitating digital transformation.

By Ge Weidong & Zeng Canfu

Editor: Linda Xu xushenglan@huawei.com



Innovation
Branding
Solution
Marketing
Analysis
Ideas
Success
Management



In the 4K era, smart devices have become more popular and consumerized, network pipes have broadened, and the demand for real-time video has exploded. Carriers now face a window of opportunity to develop real-time video services.

Transformation to digital services

4G will stimulate many video applications. A high-quality, convenient, interactive and real-time video experience is destined to become commonplace in life and work. For a long time, the CT and IT systems were separate and possessed unique advantages. IT is close to services and user demands, while CT can offer a better ubiquitous experience based on platform and pipe resources.

However, carriers cannot perform end-to-end service innovation, customization, or integrated delivery for industry customers in the same way as they do for individual users. The main reason is that there are already too many customization and integration services flooding the industry market. To implement digital transformation, carriers should combine the strengths of the CT and IT systems, tap into idle assets, and follow an open strategy.

Against the backdrop of digital transformation, China Mobile concentrates on the growth of the Third Curve, which is represented by digital services. According to Xi Guohua, President of China Mobile, "China Mobile has arrived at a crossroad. Our traditional voice services are

declining but traffic monetization has entered a golden age, with a clear opportunity to promote digital services. Transformation and innovation have entered a challenging phase, and will accompany us for a long time in the future."

During the execution of China Mobile's corporate strategy of traffic monetization and digital services, China Mobile Hubei (Hubei Mobile) found an innovative way of using cloud video communication and cloud surveillance to achieve leapfrog full-service development and digital transformation. Its Cloud Video strategy is destined to usher in a new era of real-time video operation for Hubei Mobile.

Cloud video kicks off real-time video operations

Piloting video surveillance services in the enterprise market

Hubei Mobile believed that enterprises would reduce purchases of expensive telepresence devices and cut the cost of HD video meetings and web meetings. As government agencies and small and medium enterprises (SMEs) are the main customers of cloud video communication, the potential market demand is huge.

Therefore, Hubei Mobile began cooperating with Huawei in June 2013, leveraging Huawei's HD video conferencing solution to break into the cloud video communication market. The solution provides conference boxes and software clients whereby the simple deployment of TV +

“Real-time video will become a mainstream service in two to three years. Not only can video services generate huge revenues, but they also drive the sales of broadband, traffic, and storage products.”

terminal in a meeting room can support HD video conferencing. Relying on leased lines for traffic bearing, the solution helped Hubei Mobile attract many SME and government customers, provide support for over 800 meetings, and conduct job interviews remotely.

With this lightweight and easy-to-deploy video conferencing solution, Hubei Mobile also cooperated with the China Youth Development Foundation (CYDF) to launch the Simultaneous Classroom project in Hubei province. The project aims to improve education opportunities in remote rural areas using innovative remote teaching support technologies. The cloud video communication-based remote teaching support model was listed in white papers of the Ministry of Education and UNESCO, and featured as an example of best practice by China Mobile in its annual China Mobile Products White Paper (2013 Edition), which was published and promoted nationwide.

Overwhelming market response to cloud video surveillance

After successfully piloting the cloud video communication solution, Hubei Mobile turned its eyes to real-time video surveillance in the belief that it is emerging as a common value-added service in the 4K era. Hubei Mobile integrated software development kit (SDK) in network cameras to capture real-time HD video, thereby creating solutions with automated alarms for home surveillance, shop monitoring, and care for children and the elderly. From September to December 2014,

the telco secured over 10,000 video surveillance customers. Its video surveillance business grew especially fast in Jingzhou, which alone accounted for over 30% of the total business volume.

Hubei Mobile conducted systematic market analysis based on Jingzhou, and spotted the market opportunities and driving factors of video surveillance. The telco also summarized its experience in Jingzhou. First, based on analyzing the local economy and population, the telco found that the demand for video services had exploded. Second, Hubei Mobile developed a more open attitude to business development. It eliminated obstacles to business services and coordinated channel marketing to establish competitive advantages in the market. Third, Hubei Mobile centralized frontline marketing personnel for unified deployment. The telco also considered ways to strengthen both its internal capabilities and make breakthroughs in the market, with remarkable results.

Hubei Mobile positions cloud video surveillance as a strategic reserve product that is currently targeted at the mass market, but which will expand into more industries in the future. Hubei Mobile has cooperated with its partners to launch innovative cloud surveillance applications such as *Babysitting* and *View of Hubei*.

He Ligang, General Manager of the Government and Enterprise Branch of Hubei Mobile, believes that, “Real-time video will become a mainstream service in two to three years. Not only can video services generate huge revenues, but they also drive the sales of broadband, traffic, and storage products. Hubei Mobile plans to monetize the value of real-time video when the cloud surveillance business

grows to a certain scale. Real-time video will be used to capture information. We look forward to cooperating with Huawei to create a better future.”

Building the cloud video platform to become a digital service expert

Currently Hubei Mobile is leveraging its IP Multimedia Subsystem (IMS) to build a one-stop Cloud video platform for fixed and mobile video terminals to access and aggregate leased lines, DCs, and cloud storage resources. The platform will offer unified video operation services for the individual, home, enterprise, and industry markets.

Hubei Mobile plans to build a larger video service platform with more capabilities in the future. It will work with partners; integrate its products and capabilities to engender service innovation; and expand into more areas, including smart healthcare, smart city, and smart home. At that point, the telco will have shifted from selling pipes to selling services and capabilities.

Integrating advantageous resources to succeed in the industry market

Hubei Mobile’s practice demonstrates that by adopting cloud video services, carriers can enrich their service types and develop a new core business in addition to voice, broadband, and TV. Cloud video services will not only generate revenues, but also drive 4G traffic consumption and the sale of leased lines. Cloud video services can enhance user loyalty and promote the development of storage and DC products. A rich variety of video services can also encourage 2G and 3G users to migrate to 4G.

Compared to content aggregation-based IPTV, the real-time video industry chain is shorter, giving carriers more control over service deployment and development. By opening video capabilities and focusing on platform and capability operations, carriers can build a healthy industry ecosystem and expand into more vertical industries, transforming themselves from pure pipe providers to digital service providers. This transformation will create a new business model for carriers that focuses on



charging enterprises for information services and sharing revenues with service providers rather than collecting user package tariffs.

Digital transformation helps carriers cope better with OTT competition in the Internet era. Unlike OTT video services, carriers’ cloud video services have the advantages of real time and high quality and security. Carriers also boast four more advantages in developing cloud video. First, they are trusted by general consumers. Second, carriers can provide storage and platform products at a lower cost than OTTs. Third, they have numerous online and offline marketing channels including business halls, agents, and customer managers. In contrast, OTTs only have online marketing channels or, at best, very few offline channels. Fourth, carriers can offer package bundles and vertical integration.

From a horizontal point of view, cloud video surveillance will become a new core business for carriers in addition to voice, TV, and broadband services. From a vertical point of view, carriers can implement vertical integration with insurance companies and upstream service providers in areas such as firefighting and policing. They can implement backward charging to enhance user loyalty as well as competitiveness.

It is noteworthy that the individual consumption market is saturated whereas demand in the enterprise and vertical industry market is booming, forming a new blue ocean market. However, the enterprise and vertical industry market requires integration and customization services. Carriers can no longer realize end-to-end service delivery in large volumes as they did in the past. Therefore, it is wise for carriers to cooperate with powerful industry partners and integrate their products. Hubei Mobile’s experience provides a very good example of how carriers can develop real-time 4G video services and leverage their advantages to build an open and healthy industry ecosystem. [www](#)

MTN Cyprus

Success through sharing



Scan for mobile reading

Digital transformation is a must for all operators, and LTE is a must if mobile operators are to offer digital services of ROADS-capability (real-time, on-demand, all-online, DIY, and social). However, the notion of each mobile player having its own exclusive infrastructure isn't always financially viable. Radio-access network (RAN)-sharing lowers the barrier to LTE entry, as it has for MTN Cyprus, and a connected future for the island-nation awaits.

By Linda Xu

Editor: Jason jason.patterson@huawei.com



Cyprus' telco infrastructure has played a vital role in transforming the island into an internationally-recognized commercial center. The Cyprus network is fully digitized, with the mobile market dominated by Cytamobile-Vodafone and MTN, and a third operator (PrimeTel Mobile) launching MVNO operations in mid-2011. MTN Cyprus entered the Cyprus telecom market in 2007, and is expected to achieve 40% market share by 2016. It has invested tens of millions of euros in infrastructure upgrades over the years, but Cyprus hosts more than two million tourists annually, nearly double the tally of its 1.1 million citizens. Fluctuations in this area make the infrastructure equation complicated.

Cooperation is a must

Network sharing has become a compelling value proposition for service providers worldwide. Originating in Europe, radio access network (RAN) sharing emerged as a means of taking some of the sting out of licensing fees. Shared network construction can reduce the time involved dramatically, and reduces operational costs to boot.

MTN Cyprus and PrimeTel have a history of collaboration, starting in 2011 when the latter launched its MVNO operations. But in 2014, PrimeTel was granted a mobile license, and both operators agreed that LTE could best be achieved through shared network infrastructure.

Leveraging Huawei's shared RAN solution, MTN Cyprus has seen significant improvements in terms of CAPEX and OPEX, and managed to launch Cyprus's first LTE network in Q1 2015, with access speeds of up to 70Mbps.

Sharing lowers the barriers

According to Philip van Dalsen, CEO of MTN Cyprus, "The trend for shared RAN will most probably remain strong in the years to come, as the market pushes for next-generation services which require low-latency, ultra-fast wireless broadband networks. For operators in small markets, the necessary investments are relatively high and rather difficult to amortize. However, no one is willing to lag behind. As evidenced by similar projects in other European markets, the network sharing agreement



with PrimeTel will help MTN solidify its market position as the fastest mobile network in Cyprus, realize structural cost-savings that will positively impact our value proposition, and further improve our environmental footprint. Huawei's network-sharing solution helps us maximize the benefits of this strategy, while maintaining the highest service quality and guaranteed privacy for our customers."

The mutual utilization of radio resources will open up paths to other types shared infrastructure (transmission sharing, fixed telephony, Internet services, etc.). According to Cosmas Adam, CTIO of MTN Cyprus, "The agreement with PrimeTel benefits MTN directly and indirectly; it helps us make our network evolution less CAPEX-intensive. It unlocks the efficiency of our investments, and it enables us to adopt an optimized business model. Moreover, it could help us, in principle, reduce the number of 4G base stations, in case each operator decides to proceed with his own roll-out plan. Then we will talk about an even more sustainable and socially responsible solution. However, there are several challenges. Our network plans need to leave room for changes in traffic profile and coverage needs, and moreover, they must ensure the flawless delivery of three different network layers, that is 2G, 3G and LTE, through common radio yet different core resources."

Looking ahead

Without RAN sharing, LTE would not have been viable for MTN Cyprus or Primetel. And without LTE, mobile ROADS-capable services are not possible. Such capabilities will enable both operators cooperate better with OTT players, enabling new business models that will be sure to stir up the Cypriot economy.

For the future, MBB will expand to every corner of Cyprus, as the need to adapt to the services of today & tomorrow such as HD video streaming, the IoT, and cloud computing never ends. 

Sichuan Telecom

Broadband leadership via 4K



Scan for mobile reading

Just a few short years ago, China Telecom Sichuan (Sichuan Telecom) was trading water in an undifferentiated market with increasingly finicky consumers. But the telco has managed to break the mold in China with 4K Ultra-HD content, delivered through an unprecedented fiber deployment. Subscriptions and revenues have followed. General Manager Zhao Maiqing and Deputy General Manager Zhou Qingjiu have the details.

By **Chen Yuhong**

Editor: **Linda Xu** xushenglan@huawei.com



“By the end of 2015, Sichuan Telecom will realize full optical network coverage of the entire province. Optical fiber users will account for over 90% of our total subscribers.”

— Zhou Qingjiu, Deputy General Manager, Sichuan Telecom



The “012” strategy

In 2013, Sichuan Telecom proposed its “012” transformation strategy, involving “0”-cost 4K Ultra-HD video, “1” optical fiber to the home, and “2” mobile phones. According to Zhao Maiqing, “We think that the 0 market is relatively easy to break into. Strategies 1 and 2 are realized through a CNY169 (USD27) service package, which allows users to enjoy Sichuan Telecom’s IPTV and optical broadband services, as well as two smartphones.”

Zhao also discussed the saturation of the Chinese market in terms of smartphones. Carrier expansion in this area is difficult, so China Telecom responded by bundling them with broadband. Zhao stated, “Telcos must reduce their churn rate and develop new subscribers. IPTV and optical broadband can greatly boost telcos’ business development in the smartphone market. Our surveys found TV an indispensable terminal in the living room and a rigid demand for customers. If we could add IPTV service to our broadband-plus-mobile phone package, promotion would be much easier. After all, if we can’t create new demand, we’ll have to satisfy existing market demand to the utmost. So we chose IPTV, as Sichuan Telecom was thinking about differentiated competition. Today all carriers offer basically the same bandwidth package. Sichuan Telecom has an

advantage in IPTV.”

Zhao would later add, “Video is a basic telco service, but telcos cannot simply focus on innovation while ignoring pipe construction. We must first enhance network performance. IPTV service based on optical broadband is an innovative pipe service. Compared with pure pipe services, IPTV has a more intimate relationship with consumers, providing movies, TV series, and a wide range of other new services. Therefore, 10 million IPTV subscribers are worth more value than the same number of fixed broadband and telephony users. It is clear that video services can help telcos drive business development, increase revenues, and adapt to future changes.”

With video now a basic service, Sichuan Telecom has carried out comprehensive transformation in terms of network planning, construction, operation and maintenance. A 4K Ultra-HD film online requires at least 50Mbps of bandwidth. Multi-screen, multi-room support of such quantities requires a broad network that is both speedy and capacious.

Copper out, fiber in

In 2014, Sichuan Telecom deployed optical broadband in 5,279 villages, and this no doubt helped make the “Sichuan Model” a part of the Chinese government’s Broadband China initiative. According

“By the end of 2015, Sichuan Telecom will realize full optical network coverage of the entire province. Optical fiber users will account for over 90% of our total subscribers.”

— Zhou Qingjiu, Deputy General Manager, Sichuan Telecom



to Sichuan Telecom Deputy General Manager Zhou Qingjiu, “It is estimated that by the end of 2015, Sichuan Telecom will realize full optical network coverage of the entire province. Optical fiber users will account for over 90% of our total subscribers. Certain traditional switches will also gradually be replaced. As network bandwidth increases and application-types change, Sichuan Telecom’s networks are being transformed from access-aggregation networks into content-bearing networks. In addition to the enhancement of basic access networks, we must plan comprehensively in terms of video content distribution, involving the CDN construction, server clustering for video content bearing, the relationship between the playback subsystem and user distribution, as well as the playback support and VAS development.”

Make way for 4K

According to Zhou, “We have done a lot in preparation for 4K video business, including cooperation with Huawei in terms of access network construction, feature design for service provision platforms, as well as 4K terminal and service development. As the video business requires quite different sales channels from traditional business in terms of customer experience and sales sites, we cooperated with numerous TV vendors to set up 4K video experience zones in locations where they sell 4K TVs (which are plentiful in China thanks to its thriving base of local low-cost

manufacturers). We also worked relentlessly to aggregate 4K content. Although the 4K industry chain is immature, it is growing rapidly. Our service support and guarantee system also must adapt to video business development, which involves FTTH, the installation and debugging of 4K terminals, and the introduction and demonstration of 4K experiences during service delivery. In other words, 4K business promotion is comprehensive.”

According to Zhao Maiqing, “At the end of 2012, Sichuan Telecom had only 700,000 IPTV subscribers and one million optical broadband users. By the end of this past July, our IPTV subscribers exceeded six million, with optical broadband users exceeding seven million. The last two and a half years have seen astonishing user growth, and a significantly reduced churn rate amongst mobile subscribers. The percentage of smartphone users is also increasing, as is the average traffic consumption per user. China Telecom’s statistics show that from January to May 2015, Sichuan Telecom ranked first in terms of net growth of IPTV numbers, broadband, and smartphone users. We also achieved the fastest growth of primary business revenues.”

What’s more, Sichuan Telecom’s TV value-added services (VAS) revenues tripled their 2013-levels in 2014, with Ultra-HD services estimated to have retained 700,000 subscribers in the same year.

Industry chain cooperation to expand the market



The lack of content is a big obstacle to the 4K industry. Sichuan Telecom plans to break this barrier through tireless work with industry partners from the second half of 2015 to jointly promote the development of the entire industry chain.

On the day Sichuan Telecom launched its 4K services, the telco announced the establishment of the Ultra-HD 4K Industry Alliance, which it co-founded along with Huawei, Sichuan Radio & TV Corporation, Chengdu Radio & TV Corporation, BesTV, Union Voole, Changhong, Hisense Sony, and Samsung. The alliance developed a set of business models and industry chain cooperation models, allowing all industry participants to proactively invest in 4K with their advantageous resources.

Sichuan Telecom has three types of partners across the 4K industry chain. Type 1 is the network and platform builders, including ICT solution providers such as Huawei, platform providers, and software and hardware service integrators. Type 2 is content providers. In addition to original iTV, the telco needs a richer variety of premium 4K contents to support 4K business development. Type 3 is smart device producers. For example, over half of all on-sale TVs of more than 50 inches are 4K-enabled. 4K terminals will only grow in popularity.

When technology and content is ready, appropriate business models will become essential to 4K popularization. Currently, most of Sichuan Telecom's 4K content is movies and TV series. In the future, the telco plans to provide a wider

range that adds education and health care to the equation. Furthermore, in addition to TV sets, Sichuan Telecom will deliver 4K functions and services on other terminal devices such as smartphones, tablets, and even wearables. When the subscriber base grows, telcos can devise more flexible interaction and business models, such as backwards-charging.

From July, Sichuan Telecom has started to sell 4K STBs. By the end of 2015, Sichuan will have over two million 4K STB users. As for 4K program introduction, Zhao thinks that telcos should share profits with the upstream industry chain. During market incubation, telcos should attract users by offering 4K content at relatively low prices, even free. Telcos can also subsidize the sales of 4K STBs. Sichuan Telecom hopes to work with all industry partners to actively promote 4K development, thereby making Ultra-HD video content available to more users.

Zhou maintains that once 4K services are well established in the home market, there will be a growing demand for them in the enterprise market. For example, some hotels and restaurants deployed small-sized independent video-on-demand (VOD) systems a few years ago, but with low system efficiency. Zhou thinks they'll be happy to upgrade, if telcos can bring standardization and customization to the video service equation. This would represent a vital first step of telco expansion in the potentially huge enterprise market, something Zhou is confident will happen. [www](#)

TeliaSonera & IoT

Already ahead but only just beginning

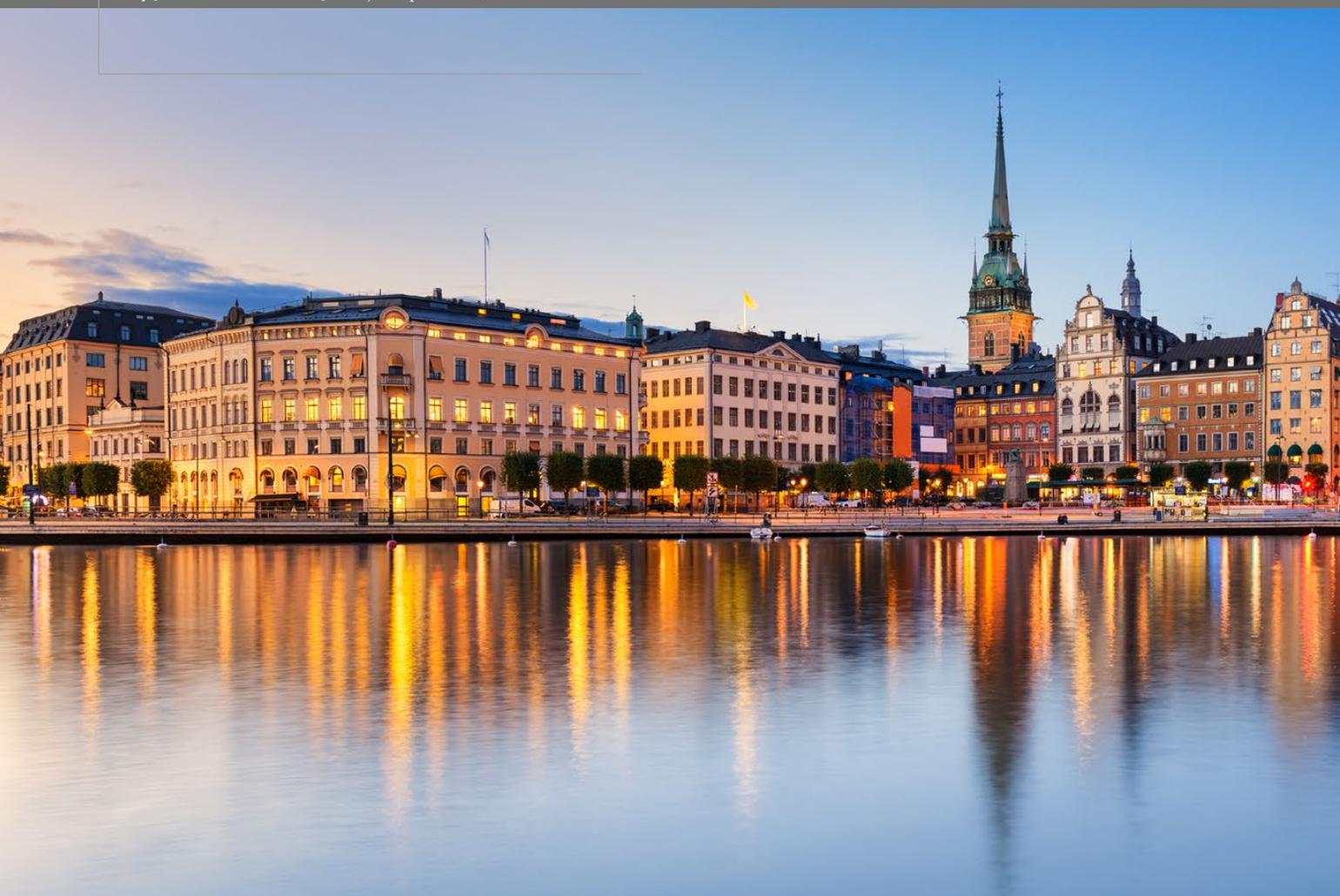


Scan for mobile reading

According to regional incumbent TeliaSonera, connected things per person in the Nordic countries will rise to 2.6 by 2017. TeliaSonera has been pushing IoT applications in numerous verticals in the region and delivered remarkable business gains and social benefits. But according to Sverker Hannervall, senior adviser to the CEO and GEM, “Although we often get overwhelmed by the changes IoT has brought us, we are just at the beginning.”

By Julia Yao

Editor: Jason jason.patterson@huawei.com



“We have built vendor, partner, and collaboration programs, and work with communities in Europe. There are many dimensions for how we inspire M2M.”

— Sverker Hannervall, Senior Adviser to CEO and GEM, TeliaSonera



A promising market: 2.6 connected things per person

The Nordic countries are hotspots for M2M growth. The number of connected things has already surpassed the region's total population. TeliaSonera and Arthur D. Little estimate that by 2017 there will be 2.6 connected things per person. By 2017, an estimated 23 million things will be connected in Sweden alone. In the same vein, Huawei predicts that towards 2025, there will be 100 billion connections, among which 55% will be business-facing categories, triggering endless possibilities for vertical businesses.

In the Nordics alone, TeliaSonera projects market growth of around 23% annually until 2018, reaching EUR9.1 billion. While the operator sees growth at its core businesses stalling and flat group sales this year, its M2M business has grown by 20-to-30% annually in the past five years – clearly a new growth engine.

Open up for IoT opportunities

TeliaSonera is an advocate and a pioneer in M2M businesses. The telco was ranked the best regional M2M operator in the world in a 2013

M2M Operator Scorecard conducted by analyst firm Analysys Mason. According to Hannervall, “Our main contribution in M2M is providing connectivity. But another thing is to inspire companies and industries to explore this M2M capability. We have built up vendor programs, partner programs, collaboration programs, and work with international communities in Europe between M2M players so we can discuss the regulation, how we cooperate in different markets. There are many dimensions for how we can inspire companies and industries to use M2M more.” Currently, TeliaSonera's M2M Partner Program involves the entire value chain of suppliers and actors in a partnership to offer end-to-end solutions to customers. From radio modules to business processes, 57 partners are participating (including Huawei) in the TeliaSonera M2M partnership program today. The verticals are very diverse, encompassing everything waste management to wild-boar fodder timers, from connected cars (Tesla) to the power grid.

Among the many verticals TeliaSonera is engaged in, healthcare, especially connected medical devices, is an area where they see a lot of potential for M2M and where there are clear benefits to both providers and patients in terms of more cost-effective and better quality services. Hannervall quoted one healthcare example where medical professionals can access data regardless of where they are, and elderly people can

“Traditional telco vendors have been a bit old-fashioned while software development companies are moving in very fast. For us, it’s not a question of whether we will go virtualized or not, it’s how fast we change.”

receive remote checkup and treatment at home using connected medical devices. Going beyond mere connectivity, TeliaSonera acts as a solution integrator.

During the process, Hannervall sees a major shift in the telco’s position in a broader value chain. “Previously operators have one subscription, one customer; now we have many stakeholders around one device.” For this medical case, TeliaSonera’s customers are the municipalities, whose responsibility is to take care of the elderly before they go to the hospital. But at the same time, the operator also has partners who provide the cameras, alarm systems and connected devices on the patient’s wrist. Connecting medical devices also means new business models are being explored. For example, pay-per-use schemes where healthcare providers only pay when they use the device. In addition, there is potential for more flexibility in payment entities. The one device can have many beneficiaries. One sensor on a patient can send information to the user, the doctor, the insurance company, as well as family members – each entity can opt to pay for this service. The service is now being provisioned in Sweden, but will be introduced into other countries in the region where aging population care can be a major cost and burden for government.

Connectivity is the foundation

To fully tap the huge opportunities of a Better Connected World, operators must be more agile, flexible, and quick. TeliaSonera is actively building up its IT and strengthening its CT capabilities. Like its peers, TeliaSonera sees NFV/SDN as key to network agility. “Traditional telco vendors have

been a bit old-fashioned while software development companies are moving in very fast. For us, it’s not a question of whether we will go virtualized or not, it’s how fast we change. We are already running tests and trials with different virtualized network elements. We will just embrace this, and use it as much as we can. It opens up enormous flexibility for us.” He elaborated on their telco cloud project, “It’s about standardizing around our environment in which we will run and virtualizing different functions in our network. This will allow us to introduce functions faster with vendors and partners, and even resell functionalities.”

However, Hannervall reminded us that connectivity is the foundation that makes all this possible. Looking to the future, 5G will greatly be used in limitless verticals for IoT. As the world’s first commercial LTE adopter, TeliaSonera is now actively researching 5G. In a 5G whitepaper published this past January, the telco defines use cases and scenarios based on a number of trends, and looks at how they might impact the mobile network, such as rapidly-increasing video traffic, the need to always be online, and M2M communication. Going beyond the technical features of 5G, Hannervall said, “We need to understand how we will take 5G into different industry verticals. Also when we do this kind of big technology steps, there are things we can’t imagine. But when we give this capacity to people and companies, they will exploit it. We will see things we haven’t dreamt about. Then TeliaSonera’s task is to provide that connectivity and service with good quality. Sometimes, we get overwhelmed at the change Internet has brought, but we are only at the beginning.” [www](#)

THIS IS AN ONLINE STORE

Huawei is helping business become more agile so that cloud-powered farms will bring customers closer to their daily produce. To find out more, visit huawei.com

BUILDING A BETTER CONNECTED WORLD



MAKE it
POSSIBLE



Designed to inspire. Inspired to design.



Ignite ∞ Creativity

• **See more in the dark**

Superb low light performance with 13MP rear camera with OIS, RGBW sensor and ISP

• **Paint with light**

Light painting made easy with instant preview

• **Designed to inspire**

Sleek and bold metallic body with 5.2" FHD screen

HUAWEI P8



Please refer to the real product for color, shape and material.
Demonstration is created by visual effect.

consumer.huawei.com

