Mobile Policy Control
Addressing the modern challenges facing mobile service providers with Procera Networks Solutions

THREE MAIN PROBLEM AREAS — AND HOW TO OVERCOME THEM
By combining network function virtualization with a virtualized policy and charging solution, service providers can gain all the capabilities they need to address the bandwidth and quality of experience challenges they are facing. However, implementing a solution to solve these challenges may be easier said than done. In order to make such a solution a reality, today’s service providers need to be able to account for three main problem areas: video, analytics (aka Big Data), and location awareness.

To help service providers deal with these new problem areas, companies like Procera Networks have begun to offer new solutions aimed specifically at solving these challenges. With these solutions, service providers can take the first step toward implementing a virtualized mobile policy control platform that gives them end-to-end visibility into how their subscribers are using the network, what quality of service they are experiencing, and what kinds of new service and monetization opportunities might exist.

WHY MOBILE SERVICE PROVIDERS ARE UNIQUE
Although all network service providers are currently struggling to find ways to meet growing customer expectations while also increasing service agility and keeping costs down, the challenges faced by mobile service providers are unique and deserve special consideration.

The move toward greater mobile bandwidth usage has occurred at an exponential rate over recent years, and today’s mobile users have already developed strong expectations around quality of service and the performance of their devices and applications. This rapid change means that mobile service providers simply cannot afford to be slow in bringing new solutions to market; they need to be able to address their users’ expectations, and they need to be able to do it quickly and cost-effectively.

On top of this, mobile service providers face obvious challenges when it comes to location awareness. Being able to identify a mobile user’s location correctly is a prerequisite for all the analytics and bandwidth allocation work that a service provider might need to do in the future. Getting location awareness right is key.

In this white paper, we will take a closer look at the specific challenges that mobile service providers are facing in a changing world. Then, we will look at how a mobile policy control

PROBLEM AREAS FACING MOBILE SERVICE PROVIDERS:
A QUICK OVERVIEW
The mobile marketplace is becoming a subscriber experience battleground. If mobile service providers cannot give their subscribers the kind of user experience they expect, then nothing else they do will really matter. The experience is truly that important. Here is a quick overview of each of the problem areas that could interfere with a mobile service provider’s efforts to ensure a quality user experience.
• VIDEO
Mobile users are consuming more video than ever before, creating bandwidth and quality of service concerns. At the same time, if mobile service providers cannot ensure consistent video streaming, this will cause advertising revenue loss, interfering with an important revenue stream. Bad streaming video experiences (buffering, stream failures, etc.) are some of the most memorable mobile data failures for consumers today.

• BIG DATA ANALYTICS
As mobile service providers have access to more data than ever before, one would assume that this would lead to a better understanding of the subscriber, and therefore, a better overall subscriber experience. This is true in a way, but the advent of big data makes it extremely difficult for mobile service providers to connect their different “islands” of data into something that provides a complete picture that can be used to support planning and decision-making. Too much data, or data delivered with incorrect (or even no) context, can often lead the operator to make inefficient or incorrect decisions about where to invest their CAPEX or to launch services that will not deliver a high ROI.

• LOCATION AWARENESS
For mobile service providers, knowing where a user is is an important precursor to knowing who a user is and what they’re experiencing. That’s why it is no exaggeration to say that there can be no real-time subscriber intelligence and analytics without accurate real-time location awareness. Location awareness is also an important part of RAN congestion management as mobile service providers must first identify where the source of the congestion is before they can take steps to address it. The saying “Location, Location, Location” is especially true in mobile networks as it is the single largest source of mobile data issues – whether it is coverage or congestion related.

• WHAT HAPPENS IF THESE CHALLENGES AREN’T TAKEN INTO ACCOUNT?
Mobile service providers need to be able to address the issues of video, big data analytics, and location awareness in order to compete in the current era of high customer expectations. Today’s leading mobile service providers are successful specifically because they offer highly personalized services, and having granular end-to-end visibility, based on advanced analytics and deep packet inspection (DPI) technology, is required in order to provide the kind of personalized service that subscribers have come to expect.

Those mobile service providers that cannot address video, big data analytics, and location awareness quickly and effectively will find themselves losing subscribers to their more nimble competitors. In a mobile landscape that is becoming increasingly saturated, finding a new subscriber is much more expensive than keeping an existing one, so it is very important that mobile service providers do everything they can to improve their retention rate and reduce customer churn. Improving the quality of their service is an important first step toward accomplishing this.

ADDRESSING THE VIDEO CHALLENGE WITH VIDEO PERSPECTIVES
Today’s mobile consumers have more choices than ever before when it comes to consuming video, and it shows. Mobile video accounted for about 50 percent of all mobile bandwidth consumption in 2013; experts predict that by the year 2017 this number will jump even higher, accounting for 85 percent of total network bandwidth available. This high percentage shows just how important it is for mobile service providers to start considering the issue of video; if they don’t make special arrangements to handle video, they will be opening themselves up to extreme congestion within their network.
In addition, mobile service providers must consider the fact that there is a lot of money to be made in video. Recent estimates show that mobile video creates about $2 billion in advertising revenues, while over the top (OTT) video streaming services create an additional $4.2 billion in revenue. As a result, there are two clear reasons why video matters to mobile service providers: it is one of the most valuable revenue generators there is, and it’s also something that subscribers demand. Failing to provide quality video service could result in both lost revenue and lost subscribers.

**PROCERA VIDEO PERSPECTIVES**

Procera’s Video Perspectives solution is specifically aimed at helping mobile service providers gain a greater understanding of how mobile subscribers use video. Most importantly, it details exactly where the breakdown in quality of experience occurs, enabling the operator to make the right investments for improving their video quality of experience. Mobile service providers can then visualize the data they collect and use it to create customized reports that help generate insights and drive better decision making for specific issues.

Procera Video Perspectives can be used as a standalone analytics solution or as a part of the integrated Procera Insights platform. Either way, Video Perspectives gives mobile service providers the visibility they need to keep advertising revenue rolling in and ensure that subscribers are satisfied with the mobile video experience they receive.

**Figure 1**

**MOBILE POLICY CONTROL**

**USE CASE 1**
**VIDEO QOE MANAGEMENT**
- Video traffic detected
- Selective steering of video traffic through video optimization system
  - By device, plan or video type

**USE CASE 2**
**SUBSCRIBER ANALYTICS**
- Ongoing collection of subscriber analytics data
- End to end subscriber visibility

**USE CASE 3**
**LOCATION AWARENESS**
- Real-time Location Awareness
- Real-time Subscriber QoE
- Radio Signal Strength
- Foreign Radio Tower Detection

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**Procera’s Video Perspectives solution** is specifically aimed at helping mobile service providers gain a greater understanding of how mobile subscribers use video.
Make informed decisions based on a deep understanding of who mobile subscribers actually are, rather than relying on intuition with Procera’s Insights.

ADDRESSING THE BIG DATA ANALYTICS CHALLENGE WITH PROCERA’S INSIGHTS SOLUTIONS

Big data is one of the most transformative forces in the world of technology today and mobile devices certainly have a lot to do with that. Whether mobile service providers realize it or not, each one of their subscribers is a never-ending source of valuable data. The issue is that mobile service providers have never before had a solution in place that was designed to handle the large amounts of data that today’s mobile subscribers create. This means that big data is just as likely to overwhelm a mobile service provider with seemingly irrelevant and unusable data as it is to contribute useful insights that help them to understand subscribers better.

The good news is that mobile service providers clearly recognize the need to make better big data analytics a part of their business going forward. Mobile operators currently spend about $50 billion annually on big data analytics. Considering the fact that a better understanding of subscribers can contribute to a number of different business initiatives, including marketing, customer care, engineering, planning and strategy, and revenue generation, it is no surprise that mobile service providers have come to place such a high priority on big data analytics.

PROCERA’S INSIGHTS SOLUTIONS

To help mobile service providers tame the big data monster, Procera has created the Insights line of solutions. Procera Insights will include three distinct offerings, each aimed at a different business initiative that can benefit from the proper management and application of big data: Marketing Insights, Customer Care Insights, and Engineering Insights.

Using these solutions, professionals within the mobile service provider industry can get the data and visibility that matters most for their role. With this data they can make informed decisions that are based on a deep understanding of who mobile subscribers actually are, rather than relying on intuition. Mobile service providers will also be able to connect separate islands of data into a complete organization-wide data repository that helps drive better business strategy and planning.

ADDRESSING THE LOCATION AWARENESS CHALLENGE WITH RAN PERSPECTIVES

Location awareness is the single greatest factor effecting quality of experience for mobile subscribers and is inherently more important for mobile service providers than it is for other types of service providers. As mobile users move from place to place, they can cause unpredictable patterns of RAN congestion that can have a severe impact on the quality of the user experience.

In some instances, this RAN congestion can be caused by events that gather large numbers of mobile users in the same place. Examples of this are sporting events, concerts, and festivals. Other events that cause huge spikes in mobile usage, such as natural disasters, are not scheduled in advance, making it harder for mobile service providers to plan for them. Using location awareness can help mobile service providers adjust quickly in order to maintain quality of experience as much as possible.
To address the issue of location awareness, mobile service providers need a lightweight, accurate solution that can report directly from a mobile device to a data management platform. This is exactly what Procera has delivered in the form of RAN Perspectives.

RAN Perspectives is an applet that is delivered directly to a mobile device’s SIM card. The applet then reports 3GPP signaling information back into Procera’s PacketLogic software, allowing mobile service providers to track metrics for things like cell ID and signal quality. The solution is lightweight and easy to deploy because it provides a single offering that can combine IP data and RAN data into an integrated, useable whole, rather than forcing mobile service providers to rely on separate systems to provide all of the location awareness data they might need.

Using RAN Perspectives, mobile service providers can address the subscriber experience in a much more meaningful and complete way. For instance, a traditional intelligence solution might tell you that a mobile user was having difficulty accessing the network. It wouldn’t tell you why they were having trouble, or what you could do to fix the problem. With RAN Perspectives, mobile service providers can better detect and mitigate traffic and congestion problems putting them in a better position to deliver a high quality of experience.

When a mobile service provider combines Procera solutions that address video, big data and location awareness into a single integrated mobile policy control platform, the advantages they gain will be tremendous. For instance, they will be able to conduct location-aware cell tower switching to keep mobile traffic away from the most congested areas. They will also be able to crowdsource drive testing, using all of the mobile devices in an area to report signal strength, quality, and coverage events.

This will allow them to create a much more complete picture of what’s going on in an area than they could ever get by looking at data from a single device in isolation. Finally, mobile service providers will be able to take steps to ensure the quality of experience for video. Whenever the systems detect a degradation of quality, it can use selective steering to route certain types of video traffic through a video optimization system, helping to keep the quality high for as many users as possible.
SUMMARY AND FINAL THOUGHTS
The mobile policy control solutions Procera offers can give a mobile service provider everything they might need to address quality of experience and service issues.

With Procera Video Perspectives, mobile service providers can get the information they need to ensure a high quality of experience for video—an important goal as mobile users are watching more video than ever before.

With the Procera Insights solutions, mobile service providers can put big data to work in order to address a variety of different business initiatives. As a result, these service providers will be in a better position to serve their subscribers and drive new sources of revenue.

With Procera RAN Perspectives, mobile service providers will be able to conduct better location awareness analytics, helping them gain a greater understanding of the root cause of any quality of experience issues that might arise.

Simply put, a mobile policy control platform from Procera provides the key to success in the era of increased mobile traffic and higher subscriber expectations. To learn more, or to get started with your own mobile policy control platform, contact Procera Networks today.

SUMMARY
Addressing the Video Challenge with Video Perspectives:
• Gain a greater understanding of how mobile subscribers use video
• Identify exactly where the breakdown in QoE occurs
• Visualization and insights into data drives better decision making

Addressing the Location Awareness Challenge with RAN Perspectives:
• SIM card applet
• Lightweight and accurate reporting from mobile devices to a data management platform
• Reports 3GPP signaling information to Procera’s PacketLogic software
• Combine IP and RAN data into an integrated, usable whole

Addressing the Big Data Analytics Challenge with Procera’s Insights Solutions:
• Handle large amounts of mobile subscriber data
• Three distinct analytics solutions:
  • Marketing Insights, Customer Care Insights, Engineering Insights
• Grants visibility and access to valuable and relevant data

ABOUT PROCERA NETWORKS
Procera Networks, the global Subscriber Experience company, is revolutionizing the way operators and vendors monitor, manage and monetize their network traffic. Elevate your business value and improve customer experience with Procera’s sophisticated intelligence solutions.

For more information, visit proceranetworks.com or follow Procera on Twitter at @ProceraNetworks.