

Know Your Content

Service providers probably wish they didn't have to think about over-the-top content at all, given the challenge it presents. The smarter approach is to better understand that traffic, for the sake of their network—and their customers.

By Rich Karpinski

While service providers offer some walled-garden services, users continue to leverage the open ecosystem of services, apps and products available to them. Over-the-top (OTT) content—such as Netflix streaming movies, Skype two-way video calls or graphics-heavy Facebook wall posts—presents telecom service providers with a great conundrum.

In many cases, access to that third-party content or those online (and increasingly mobile) activities is the reason users value their broadband connections in the first place. Yet today, providers have very little control over the content that runs over the top of their networks—both wireline and wireless.

That presents several key challenges for service providers: first, they are limited in managing how that content impacts their networks, and ultimately their bottom lines; second, they need fresh and innovative approaches for participating in these new revenue-generating services; and third, they are hamstrung in how they can ensure a superior, differentiated experience for customers accessing that content.

Overcoming those limitations is crucial. Operators must be able to manage the bandwidth demands on their networks to control costs and plan for the future. At the same time, they must be able to keep customers happy and expand their

service offerings or, in today's highly competitive market, they won't have much of a future at all.

How can operators address OTT traffic and simplify their networks, and do it all while offering new services and saving money? The answer, in a phrase, is they need to become more "content aware."

What exactly does that mean? Providers need capabilities to capture, measure, analyze and manage the content and services being consumed over the top of their networks. They need access to that crucial information in real time in order to respond rapidly to network hot spots. And they need it historically—to apply analytics and metrics against it that can help them plan their networks, discover new service opportunities build content partnerships.

The ability to deliver such capabilities sits at the center of the Tellabs SmartCore® 9200 Series, which couples strong IP routing functionality with enhanced tools and capabilities for providing insights into network content. Delivered via a new SmartCard architecture, the Tellabs SmartCore 9200 series lets service providers mix and match the technologies they need—such as flow-based or packet-based inspection and advanced security capabilities—to gain the insights that today's service delivery strategies demand.

What Does It Mean To Be Content Aware?

What is running over the top of telecom networks these days anyway?

The predominant answer is video, and plenty of it, along with loads of other high-bandwidth content. Netflix alone accounted for a staggering 32.7% of peak-hour network traffic in the United States this fall, according to a report from DPI vendor Sandvine. Video from Netflix and others will soon be overrunning mobile data networks as well, with mobile data traffic expected to increase 26-fold by 2015, driven largely by mobile video streaming, according to Cisco's Visual Network Index.

Different sorts of OTT content have different impacts on carrier networks—and different expectations from end users. Smartphone users have installed billions of mobile apps, illustrating the vastness of potential network impacts and ever-changing user preferences.

From a bandwidth perspective, most of the content delivered to those apps is relatively low-impact, though constant notifications and session start-ups offer additional challenges. The streaming of movies and TV shows, so popular today, places a heavier load on the network, as users are coming to expect near-flawless performance of those audio and video streams.

Two-way video—programs like Skype or Apple FaceTime video calling—presents an even steeper challenge. And with over-the-top HD streams becoming a reality, the network impact of OTT traffic will only continue to grow.

It is critical that telecom service providers understand those trends and become more aware of the content running over the top of their networks. When it comes to content awareness, 2 issues stand out: ensuring operator profitability and enhancing the user experience.

For operator profitability, content awareness enables operators to understand the specific types of traffic on their network, which enables them to make decisions about that traffic. That is critically important in today's world, where average revenue per unit (ARPU) remains flat while bandwidth demands continue to grow, challenging long-term profitability.

So if an operator can determine that a small number of users of OTT services account for the

majority of their traffic, they can deal with that reality. They can develop partnerships with those content providers in order to share the network costs or service revenues as a tradeoff for enabling a better user experience for those services.

Alternatively, they can identify extremely high-volume users and enforce stricter usage policies, within reason, on those customers. Or they can opt to up-sell larger data packages to those users, perhaps ensuring “premium level” service guarantees to these heaviest—and potentially most valuable—of users.

“In any and all cases, service providers cannot intelligently act on what they cannot see. Content awareness enables that visibility and control, which is paramount to long-term service provider success,” says Dave Morfas, Tellabs senior product marketing manager.

Indeed, content awareness enables visibility into the network and its performance. It enables visibility into customer behavior and likes and dislikes. And, ultimately it enables service providers to build new service and business models based on rationalizing the relationship between that network supply and demand.

And what happens if operator networks are not content aware?

Well, you've heard it before—when operator networks are not content aware, the network and the operator become marginalized as “dumb pipe” providers. Such providers, says Tellabs' Morfas, “are the conduit, but they are not capitalizing on the hot new app nor are they proactively participating in the user experience or revenue growth. They also are not conscious of user trends, which could enable service providers to better understand what personalized services users want, what their ordering and buying patterns are, and thus how they can better serve those users.”



Finally, content awareness is critical for analytics—a key but often overlooked capability that offers insights into both network optimization and marketing opportunities. Capturing and crunching network data enables operators to more efficiently optimize their networks while enabling new, more personalized marketing opportunities.

Building a More Content-Aware Network

While it is great to understand these big-picture traffic trends, carriers really need to understand the OTT traffic on a much finer level. That means building a network that is content aware to its very core.

That's one of the major themes that drove the design of the Tellabs SmartCore 9200 series, which uses a new SmartCard architecture for both basic routing functionality and enhanced content awareness. The SmartCard design delivers several capabilities to help service providers make their networks more content-aware.

First, Tellabs 9200 SmartCards have on-board content and security engines for enhanced flow-based and packet-based content awareness. This feature enables an operator to choose the amount of inspection, IPSec and advanced packet inspection density they need based on each unique application. Meanwhile, by combining high-density GigE and 10GigE line cards with intelligence on a single card, the Tellabs SmartCore 9200 series maximizes slot utilization and

simplifies network design, an important step toward lowering network complexity and cost.

Second, the Tellabs SmartCore 9200 series consists of 3 platforms, each with unique chassis designs. Yet they all share common SmartCards, with interfaces ranging from GigE to 100 GigE, enabling a service provider to interchange any SmartCard between any Tellabs SmartCore 9200 platform. This capability simplifies network planning and management and enables carriers to simply turn on the services they need on each card.

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Finally, SmartCards enable data collection and traffic identification that can feed into analytics systems, such as Tellabs Insight AnalyticsSM Services. When joined together, the Tellabs SmartCore 9200 series and Tellabs Insight Analytics help an operator better understand user and service traffic patterns. Providers can then better customize offerings based on user preferences and network trends—the very heart of content awareness.

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While the Tellabs SmartCore 9200 series and SmartCards can immediately serve many network applications—such as managing high-volume users or guaranteeing quality levels for certain services—it also helps to move operators closer to their long-term goal of building a more self-optimizing network. That requires having visibility to the applications and content on the network, a way to set and enforce policy on that content, and a means to share information among network elements so they can act on that information.

The result: it could enable an operator to throttle rogue peer-to-peer traffic at peak hours, or dynamically allocate mobile bandwidth to accommodate isolated and temporary traffic spikes, such as a huge sporting event or local disaster. Each of those scenarios are complex in nature, but ultimately, if handled correctly, can vastly simplify the network operationally. To accomplish that, operators must be able to see traffic on the network and react to it accordingly.

It all begins with improved content awareness, on the part of the network—and, ultimately, the operator. ■



The Tellabs SmartCore 9200 series includes a new SmartCard architecture that lets service providers more flexibility deserve the capabilities they need in their network.

OTT: Over-The-Top **HD:** High Definition
ARPU: Average Revenue Per User **IPSec:** Internet Protocol Security
GigE: Gigabit Ethernet