Using CDN Federation, SPs can effectively compete in the $2 B CDN market.

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Traffic growth on the fixed Internet (50% / year) and mobile Internet (100% / year) continues to be very strong. This traffic growth is to a large extent due to the rise of the online video providers, such as Netflix, Hulu, BBC and YouTube.

Often, the actual delivery of these video services is outsourced to specialized companies, the so-called CDNs, or Content Delivery Networking Providers. As a consequence, the market for CDN Services is growing as well (20% / year) and is worth about $2 B / year globally in 2011.

The CDNs have built distributed content hosting infrastructure across the internet, in which they can cache popular video assets. The CDNs interconnect with the SPs and stream Videos to the end-user. Outsourcing delivery to CDNs allows an Online Video property to reduce server, hosting, bandwidth and operations costs, while at the same time improving end-user experience through scaling for spikes in demand.

Recently, SPs have started to show an interest in CDN, either for the acceleration and scaling of their own Video Services (ex. TV Everywhere) and/or to start selling CDN services to 3rd party video providers (ex. Local Broadcasters going Online). When SPs deploy their own CDN, they can enjoy large network cost savings by distributing the CDN nodes deep into their networks, thereby offloading their transit/peering connections, IP core networks and potentially parts of their aggregation networks.

In addition, SPs can enjoy new revenues from CDN services that can potentially command a higher unit price, since they deliver a better user experience with the content being streamed from caches that are even closer to the end-users. SPs can also provide more detailed reporting on the actual video delivery to the end-user ("how was the experience on the end-user side") which represents critical business information for Media companies and Broadcasters.

From recent media research, we have seen that Media companies and Broadcasters have started to be very interested in outsourcing parts of their content delivery value chain to Service Providers. This outsourcing opportunity includes content delivery, of course, but also a number of additional services, including content preparation (encoding the content to the 100s of formats that are required by the multiple devices and screens connected on the Internet), storage, hosting, supporting multiple DRMs, inserting advertising, delivering

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detailed reports on content consumption and consumer usage, and guaranteed content delivery with a set of pre-defined SLAs on consumer's Quality of Experience.

However, SPs are discovering that selling CDN capabilities solely based on their own network footprint is complicated for Content Providers. Indeed, imagine a local or global content provider having to contract for CDN services with dozens or hundreds of individual SP/CDNs to reach all domestic or worldwide fixed and mobile Internet users, with all these SP/CDN contracts being potentially technically and commercially different.

For simplicity and manageability, Internet Content Providers would much rather deal with a single, or a few CDNs. As a consequence, the market share of Local SPs in the CDN Services market is very low.

To deal with these market realities, SPs are exploring the concept of CDN Federation, defined as multi-footprint, CDN capabilities build from resources that are owned and operated by autonomous members.

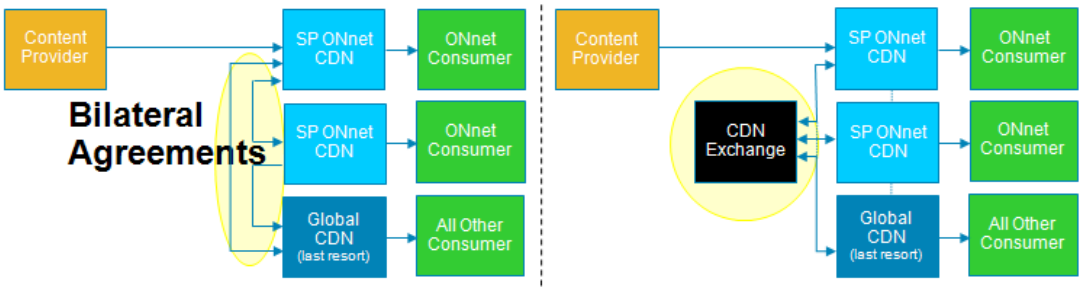
The objectives of a CDN Federation would be to:

- Allow individual members to sell internet-wide delivery
- Simplify contracting with Content Providers
- Extend ONnet differentiators (quality, scale...) across footprints
- Provide a new Interconnect model to complement IP Transit & Peering
- Reduce Local Transport costs
- Provide a platform for Value Added Services and SP Retail Services (e.g. support for TV Everywhere offers, support for managed and un-managed devices like tablets).

A couple of key deployment models for CDN Federation exist, including:

- a Bi-lateral model, where every member interconnects and interworks with every other member
- an exchange-based model, where every member interconnects and interworks with a centralized "hub" that performs interworking functions once on behalf of all the members

Figure 1: Schematic of deployment models: bilateral agreements vs. CDN exchange hub



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With the deployment of CDN Federation, SPs will be able to gain market share in the B2B2C CDN Services market and build a foundation to enjoy significant network cost savings and grow revenues from new basic/enhanced delivery services, Value Added Services and Retail Services.

Current Content Delivery Networks, such Limelight or Akamai, would also be able to join the CDN Federation in order to provide the much needed “Global offnet” delivery for regions where local caches are not deployed.

By creating this tight ecosystem, SPs and Media can create a robust video delivery environment, and deliver the right customer experience, so that consumers will indeed pay a premium price to get that premium experience.

To read more about Cisco IBSG’s analyses of the CDN opportunity, please visit “Content Delivery Network (CDN) Federations - How SPs Can Win the Battle for Content-Hungry Consumers” at http://www.cisco.com/web/about/ac79/docs/sp/CDN-PoV_IBSG.pdf and “Next-Generation Content Delivery Services – The Case for CDN Federations” at http://www.slideshare.net/ciscoIBSG/nextgeneration-content-delivery-services-a-case-for-cdn-federations

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