

PRODUCT FLASH

Cisco Introduces the First of a New Edge Series: The Aggregation Services Router 1000

Eve Griliches

IN THIS PRODUCT FLASH

This IDC Flash introduces Cisco's new aggregation services router, the ASR 1000, which not only meets the immediate criteria service providers have requested for size and power but also delivers embedded multiservice capabilities, an industry first.

SITUATION OVERVIEW

- ☒ Increasing edge requirements are driving service providers to quickly offer video and collaborative Web 2.0 services while capital expenditure and operating margins are being held in check. The managed services market continues to grow as well, and residential broadband bandwidth is increasing. Therefore, providers are actively trying to consolidate their networks to offer all of these services at once, but they must be on platforms that can support and scale all of these processor-intensive applications.
- ☒ Cisco is introducing the Aggregation Services Router 1000, a new product line that comes in three form factors: 2ru, 4ru, and 6ru, which support 5G, 10G, 20G, and eventually 40G with hardware redundancy. This product line is clearly more full featured and higher functioning than the 7200, 7300, and 7500 product lines, all of which sold into service provider and enterprise networks. And while the 7200–7500 product lines were used mostly for Internet connectivity, the ASR series, with new form factors that are compact and efficient, supplies a host of IP services the previous lines did not. The ASR, slotted below the 7600 router but above the ISR, which is used mostly in enterprise deployments and by many service providers for managed services, fits a nice niche on the provider edge as well as for high-speed managed services.
- ☒ Most applications for the ASR will start with broadband subscriber management (also available in the Cisco 10K and 7600 series), IPv4 and IPv6 routing, Layer 3 VPNs, IPSec, and session border control (SBC). The ASR also includes support for additional security services such as DPI and in the future IPS. These services are all embedded onto one custom chip called the QuantumFlow Processor. The chip is actually two chips. One is a packet processor, and the other is a traffic management chip that supports hierarchical QoS. The QuantumFlow processor is a five-year internal Cisco investment with over 40 patents submitted. IDC believes Cisco is likely to utilize this chip in other edge routers that have yet to be announced. The QuantumFlow processor chips dramatically increase performance not just for packet processing but also for delivering all the IP services embedded in the chip set. The result is a 10/20/40G firewall or SBC with the ability to run other services in parallel. This is achieved because the chip is a custom tooling design that allows Cisco to control the raw transistors in the chip to enable new services the market has yet to discover. With all this capability on one piece of hardware, density and power factors are dramatically reduced with the footprint itself.
- ☒ Cisco is also introducing the IOS XE, which provides "virtualized IOS" to allow in-service software upgrades (ISSU) without requiring hardware redundancy. This is a huge feature providers have asked for over the years. In order to do in-service software upgrades, almost all platforms require redundant hardware for failover and recovery. In this case, software can be upgraded without the redundant hardware, providing a cost advantage. The 6ru version, however, does support hardware redundancy. In addition, remote configuration as well as upgrades can be performed on the IOS XE, which is key for managed service deployments.
- ☒ The ASR 1000 will be ready for production networks this month, and Cisco is also announcing that NTT will be deploying the ASR in its next-generation network starting this month. NTT's next-generation network has been delayed a few years, and Cisco is the first vendor to be announced for deployment. NTT will use the ASR 1000 (mainly the 6ru redundant version) for provider edge applications such as subscriber management for its IPTV deployments, video-on-demand downloads, and IPv6 broadcasting.

FUTURE OUTLOOK

IDC believes this will be the first of several announcements from Cisco in the edge router market space, and this is clearly a terrific substitution for the older 7200 series. It is also well positioned to contrast the ISR with higher speeds and multiple high-end service support with lower price points and overall bandwidth than the current popular 7600 series.

Embedding the service elements into a chip is key because the field is littered with companies that have tried and failed to support multiple high-end services within a single router. Think back to Cosine, which supported firewall, IPSec, IDS, and virtual routing. Turning on a second service while one was running decreased

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processing capabilities dramatically, and the company did not last. Over time, improvements in processing and memory have also been added to edge routers, either through hardware assist or general forwarding improvements. Even these have not been enough to enable multiple high-end services to run at the same time on the same box. And while we do not have particular assurances that Cisco will support every single feature set running at the same time with increasing sessions being deployed, the fact is that guidelines will be necessary to assist customers with which feature sets are possible to implement together and scale accordingly.

This is a brave new world in which convergence is taking place within hardware platforms in parallel with the changing network design many providers are working on today. Cisco is enabling providers to deploy compact, high-end services with low power requirements on routed platforms, with NTT being the first and possibly very large example of these new deployments.