Affirmed Confirms vEPC Performance; MNOs Need to Know How New Technology Performs

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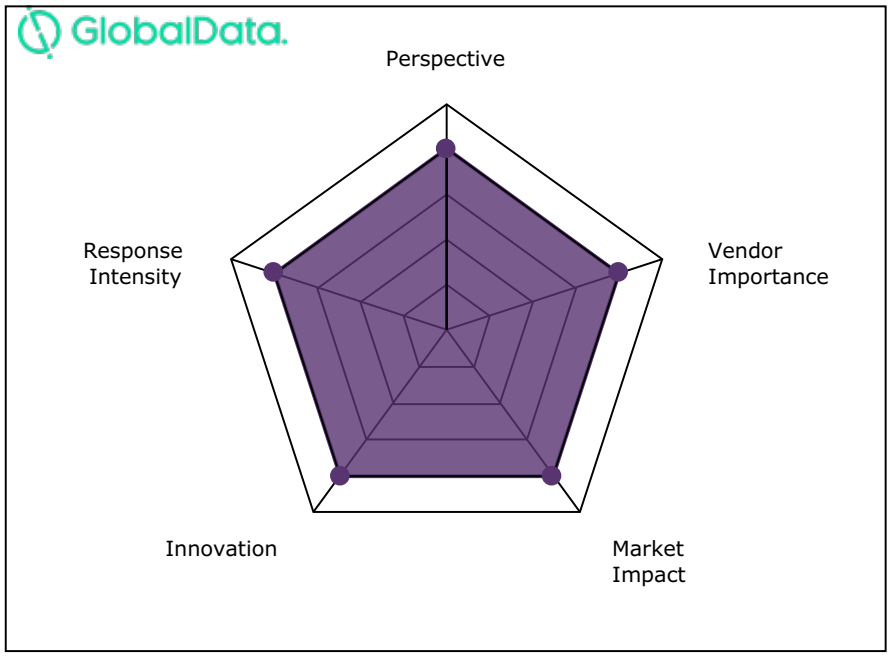
INTELLIGENCE ALERT

QUICK TAKE

Event Rating



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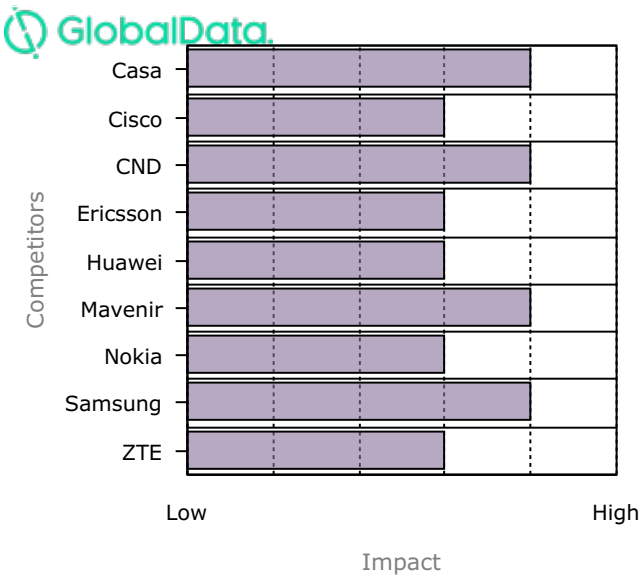
Competitive Impact



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Competitive Positives

- **Verifying Predictable Performance:** The test enables operators deploying virtualized mobile core networks to have detailed knowledge of how Affirmed's solutions will perform and scale in order to trust that deployments will deliver as expected – both cost and performance.
- **Testing Objectives:** Testing was performed by Affirmed and witnessed by Intel technology experts, which provides a level of credibility, and characterized the vEPC performance and linear scalability for specific test cases. The emphasis was on the performance of its data-plane VMs with and without DPI on several different variants of Intel Xeon servers using a near real-world packet size of 650 bytes.
- **Predictable Capacity:** Published tests results confirmed Affirmed's earlier claims that its vEPC could deliver up to 150/100 Gbps of throughput on Xeon Platinum/Xeon Gold processor-based servers, respectively. Further

testing demonstrated that with deep packet inspections (DPI), the solutions delivered 121.18/79.77 Gbps, respectively. As traffic grows and security continues to elevate in importance, more traffic flows will be inspected.

• **Linear Data Plane Scaling:** Linear and predictable scaling is needed to ensure that as traffic requirements grow, adding additional data plane VMs will deliver incremental increases in performance; also, deploying a lower-performance processor should deliver predictably lower performance. This testing verified that when a second VM was configured, the throughput doubled, and when configured with one VM, performance was one half. A single VM deployment would be useful for an edge deployment use case.

• **Supports 5G Use Cases:** The testing results position the Affirmed vEPC to support typical 5G use cases (e.g., fixed wireless, enterprise, consumer, and IoT), each of which requires a different combination of VMs for management, control, and data plane. The system's CUPS architecture and linear scaling enable operators to scale each plane separately to optimize resources and capability.

Competitive Concerns

• **Tests Conducted on High-End Servers:** The tests were conducted on Intel's high-end Xeon scalable processors (i.e., Xeon: Platinum 8180, Gold 6138); additional value could be provided by extending the test configurations downward to lower-performance servers, where operators have an investment and/or a lower performance level is adequate, such as in a lower-throughput IoT or edge use case.

• **Lack of Consistency in Vendor Testing:** Competitors have also published throughput metrics for their vEPC solutions; however, there is a lack of consistency in the test setups and how the resultant metrics are quantified and highlighted. Until there is greater consistency or normalization in the testing models, it will be difficult to accurately compare results.

EVENT SUMMARY

June 13, 2018 -- Affirmed Networks published the results of recent performance testing that demonstrated its vEPC delivering more than 150 Gbps of throughput on a single Intel Xeon scalable processor-based server. As network operators transform existing 4G networks, the need to continually improve performance and scalability has become a key business imperative. With the arrival of 5G, this need becomes even more pronounced in order to flexibly serve the bandwidth demands of new applications and services.

ANALYTICAL SUMMARY

Perspective

• Positive on the announcement that Affirmed has teamed with Intel to back up earlier performance claims regarding its Mobile Content Cloud (MCC), which offers virtual evolved packet core (vEPC) functionality. The move confirms its commitment to deliver on the promise of a fully cloud-native microservice-based mobile solution that delivers predictable performance on a COTS server-based platform (Intel). Affirmed reported during MWC 2018 in February 2018 that its 5G core delivered 150 Gbps of throughput from a single server. The newly published test report was closely monitored by Intel technical experts and characterized performance as both predictive and linear. Intel technology experts witnessed the test setup and parameters with execution on both the Platinum and Gold Intel Xeon servers. Traffic was analyzed with and without packet inspection (DPI) and scaling of multiple vEPC instances. Operators are ramping the capacity and scale of their 4G networks and preparing for 5G, and they need to design deployments based on known efficiency and performance metrics.

Vendor Importance

• High to Affirmed and moderate to Intel, because operators will need to fully understand the performance characteristics of their virtual infrastructures. As network virtualization and disaggregation continues, it will be incumbent on suppliers to provide configuration and performance guidelines that operators can leverage to ensure networks can deliver the expected customer experience. For Intel, the announcement shows that in addition to supplying technology (i.e., processors), it is partnering with its customers (software and equipment suppliers) to optimize designs that deliver predictable performance.

Market Impact

• High on the overall mobile access and VNF markets, because operators have crossed the chasm from POCs and limited deployments and are entering the mass deployment phase. They now face a new round of CapEx to build infrastructures that can deliver on the promise of virtualization and agility. The performance of VNFs can vary widely depending on the underlying virtual infrastructure, with test reports such as the one published by Affirmed and endorsed by Intel going a long way to help operators choose the optimum infrastructure without overbuilding or underbuilding for capacity. Published test reports are not new to the industry, and multiple vendors have submitted their solutions for third-party evaluation, but with new processor and software innovations, vendors will need to supply performance metrics with each new product release.

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