What You Will Learn

While only seven of these 24 companies are headquartered outside of the United States, their data

Table 1 provides details for global data center traffic growth rates.

Table 1. Global Data Center Tra□c, 2015–2020

Cloud will represent more than 90 percent of all data center traffic will be based in the cloud. (For regional cloud traffic trends, refer to Appendix C) Significant promoters of cloud traffic growth include the rapid adoption of and migration to cloud architectures and the ability of cloud data centers to handle significantly higher traffic loads. Cloud data centers support increased virtualization, standardization, and automation. These factors lead to better performance as well as higher capacity and throughput.

The Evolution of Data Center Architecture: SDN/NFV

Three technology trends are transforming the data

Cloud workloads are expected to more than triple (grow 3.2-fold) from 2015 to 2020, whereas traditional data center workloads are expected to see a global decline, at a negative 3 percent CAGR from 2015 to 2020. Traditionally, one server carried one workload. However, with increasing server computing capacity

private cloud workloads will grow at a slower pace of 15 percent CAGR from 2015 to 2020.

Figure 14.

Big data is defined here as data deployed in a

According to the National Institute of Technology (NIST), cloud computing can be divided into three main service types (refer to the section “Trend 3: Cloud Service Trends”): Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS), and each affects data control and governance a little differently. With IaaS, the customer might have full control of the actual server configuration, granting them more risk management control over the environment and data. In PaaS, the provider manages the hardware and underlying operating system, limiting enterpriss”): Infrastructure as a Service

consumers expect to be able to communicate with friends as well as stream music and videos at any time, any place. Business users require reliable access to basic, Consumer and Advanced with mobile solutions for video conferencing and mission-critical customer and operational management systems.

The study also explores the ability of each global region (Asia Pacific, Central and Eastern Europe, Latin America, Middle East and Africa, North America, and Western Europe) to supp]TJm a

The cloud readiness characteristics follow.

As cloud data centers are built and distributed around the world and content is closer to the user, the length of the time it takes for a small packet of data to be sent and received will get lesser. The other factor that can also affect latency is congestion, which leads to a lower throughput. Latency has significantly improved in both fixed and mobile networks. Figures 35 and 36 show the latency improvements from 2014 through 2016 in average fixed latency in ms as well as average mobile latency in ms by region.

Figure 35.

For further details, refer to Appendix G and the Cisco GCI Supplement.

Conclusion

In summary, we can draw se[(F-0.9 Gv0 (oreral main concli)2ons]TJETEMC /Span <MCID 1733 >BDC BT10 0 0 10 61.2 69

Analyst Data

Data from several analyst firms and international agencies (including Gartner, IDC, Juniper Research, Ovum, Synergy, ITU, and the United Nations) was used as inputs to the Global Cloud Index analysis. For example, analyst data was considered to calculate an installed base of workloads by workload type and implementation (cloud or noncloud). The analyst input consisted of server shipments with specified workload types and implementations. Cisco then estimated the installed base of servers and the number of workloads per server to obtain an installed base of workloads.

Table 9. Regional Distribution of Traditional Data Center Workloads, in Millions