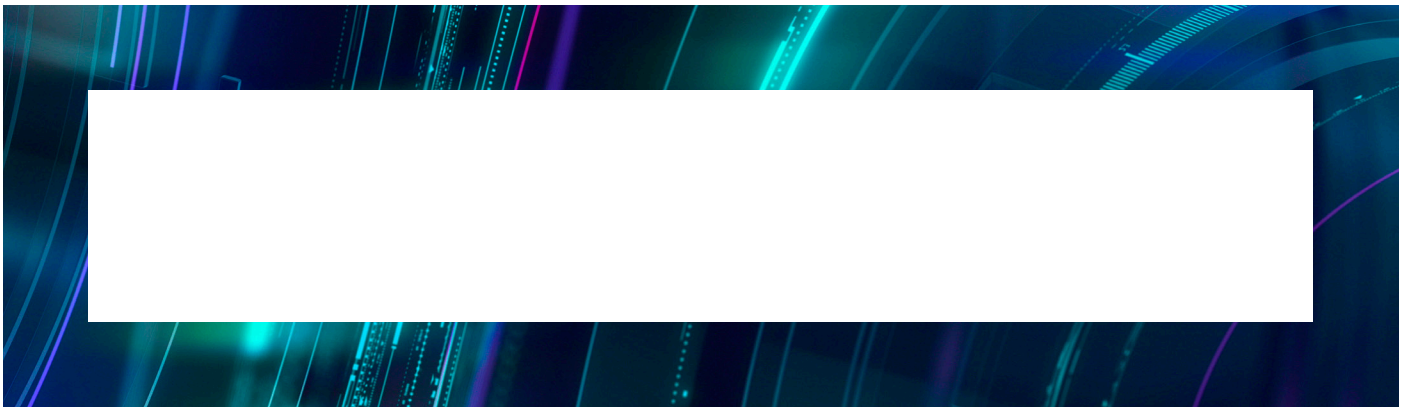
Hewlett Packard Enterprise | AMD

Solution overview



REVOLUTIONIZING THE 5G ECONOMY WITH NEXT-GENERATION TELCO CLOUD INFRASTRUCTURE

Extreme performance and reduced time to market

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HPE Telco Blueprints enable CSPs to take full advantage of 5G benefits:

- **Faster time to value:** Pre-tuned, pre-integrated solutions that accelerate time to market
- **Enhanced user experience:** Scalable and flexible solutions with high compute density for increased throughput and low latency
- **Advanced security features:** Layers of security features from the core to the edge with negligible performance impact

BRINGING 5G TO A CONNECTED WORLD

5G is a major catalyst for growth and change in today's hyperconnected, data-driven world. Telco service providers (communications service providers [CSPs]) are working quickly to unlock the revolutionary capabilities of 5G to transform their telco networks to better serve customers while generating new and differentiated services and revenue.

By 2025, the number of connected devices will reach 75 billion. As every IoT device connects to a 5G network, the economic impact will be substantial, reaching $2.2 trillion by 2034. However, the exciting possibilities of 5G also bring significant challenges.

This year, global IP data traffic is projected to reach 74 zettabytes per month. Ransomware attacks will cause $6 trillion in damages. In 2019, cyberattacks targeting IoT data surged by 300%, and this figure continues to grow. The vast increases in data traffic and cybercrime have pushed telco networks to their limits—and that's not all.

Although the rise in connected devices presents new revenue opportunities, many CSPs lack the infrastructure to keep up as network usage and bandwidth requirements skyrocket. New demands for richer services including augmented reality, virtual reality, gaming, streaming, and artificial intelligence require more throughput for countless devices and have resulted in huge up-front expenses. Without the right technologies in place, CSPs struggle to deliver a consistent user experience as well as bring in more revenue to offset the huge investment and maintenance costs of upgrading to a 5G infrastructure.

To fully take advantage of these trends, CSPs must overcome the limitations of their existing network architectures and build an infrastructure that is agile, flexible, and protected. The ideal infrastructure will be distributed and cloud native—with the capacity to modernize operations from end to end and scale to deliver new services rapidly and seamlessly.

BUILDING THE IDEAL 5G ENVIRONMENT

5G has the potential to lay the groundwork for smart cities of the future, enable innovative products such as autonomous vehicles, and fuel progress in areas such as industrial manufacturing, smart healthcare, construction, and immersive entertainment. The shift to a hybrid, cloud-native, and disaggregated infrastructure will enable CSPs to successfully achieve these groundbreaking opportunities.

Bringing together key technologies for communications, edge computing, and cloud will create an infrastructure to unleash the full power of 5G. Cloud-native infrastructure can help CSPs lower operating expenses and maintenance costs while increasing end-to-end connectivity. Leveraging a cloud experience will help them achieve real-time visibility, insights, and control over their assets, products, and services.

The combination of these solutions is a next-generation telco cloud that will help CSPs deliver cutting-edge services at the edge and drive network performance and efficiency to new heights. Now, CSPs can increase uptime with high performance, availability, and reliability. With up to 19% TCO savings, these capabilities are pivotal for CSPs to develop a new class of services and business models and increase revenue for future success.

Telco cloud infrastructure from HPE and AMD delivers game-changing advantages:

- Rapidly create new and differentiated revenue streams
- Increase agility while simplifying operational complexity
- Deliver new services faster with more flexibility
- Fortify security, trust, and privacy
- Reduce lifetime cost of ownership

PARTNERING WITH PROVEN INDUSTRY LEADERS

As 5G adoption grows and edge computing advances, CSPs are searching for partners to help them build an agile, protected environment. 5G requires specially designed infrastructure that can meet the demands of diverse modern users.

Hewlett Packard Enterprise and AMD are empowering CSPs to harness the full potential of 5G with extreme performance and have designed solutions to accelerate time to market. HPE offers extensive telco expertise and continued leadership in data center transformation to help CSPs meet the evolving demands of their customers with 5G. Through a deep collaboration, we have developed telco cloud infrastructure that helps to deliver maximum throughput, low latency, resiliency, and increased innovation.

HPE and AMD deliver high-performance telco blueprints that are pre-tuned end-to-end solutions, which help to reduce time to market, simplify deployments, and accelerate time to value. With HPE Telco Blueprints, you can deliver new services quickly with flexibility and protection at any scale. These solutions have the power to transform your telco cloud with open, protected, distributed HPE infrastructure powered by the latest AMD EPYC™ processors.

HPE ProLiant Gen10 Plus servers provide an industry-leading solution ready to address the performance and density challenges of the refresh to 5G, along with the confidence of being certified to NEBS Level 3 compliance. Therefore, it is not surprising that many top CSPs have already deployed HPE ProLiant DL325 and DL385 Gen10 Plus servers for data-intensive workloads and 5G applications.

AMD EPYC processors deliver exceptional performance from core to edge with the world's highest performing x86 server CPUs. AMD EPYC processors allow CSPs to test the boundaries of what's possible by delivering massive processing power, security features, and efficiency. The latest generation offers critical advantages for 5G networks—including up to 60% higher core density, up to a 2x increase in I/O performance per socket, and 2x the number of PCIe Gen 4 lanes versus the competition.[1]

Based on findings from HPE Labs, we can achieve record-breaking throughput with over 1 Tbps of performance using a single HPE server and the latest AMD EPYC processors.[2] We will feature this unmatched pairing in our telco blueprints to fuel 5G capabilities that were previously impossible and create the ultimate user experience.

ADOPTING OPEN, ESTABLISHED, CERTIFIED SOLUTIONS

HPE and AMD make it simple to innovate with open technologies that are designed to give you greater flexibility. We offer open solutions designed for Network Functions Virtualization (NFV). From purpose-built network equipment to an NFV-based telco cloud, digital infrastructure from HPE and AMD has the elements you need to enhance your telco infrastructure. These HPE validated, carrier-grade virtualization technologies deliver world-class performance and reliability. Now, you can adopt validated reference configurations, which you can rapidly customize according to your requirements. A modular design approach allows you to easily ramp up compute, storage, and networking capacity for even the most intensive 5G workloads.

HPE Telco Blueprints have been validated with Red Hat® OpenStack® Platform, a leading open-source cloud platform that virtualizes resources and manages them for you, so you can access what you need when you need it. This powerful offering helps you boost scalability, efficiently allocate resources, and remain compliant with changing regulations. Red Hat OpenShift® Container Platform (OCP) is also available for HPE Telco Blueprints, which accelerates 5G application development, supports DevOps, and enhances department-wide collaboration.

[1] PCIe Gen 4 lanes comparison between highest performance EPYC (7763) and Ice Lake (Platinum 8380) processors: amd.com/en/products/cpu/amd-epyc-7763, intel.com/content/www/us/en/products/sku/212287/intel-xeon-platinum-8380-processor-60m-cache-2-30-ghz/specifications.html

[2] As of 2021, HPE has achieved over 1 Tbps of throughput performance using a single HPE server and the latest AMD EPYC processors in HPE Labs.

Resources

hpe.com/us/en/solutions/amd

hpe.com/telco

hpe.com/us/en/servers/proliant-dl-servers.html

amd.com/epyc

hpe.com/psnow/doc/a50003043enw?from=app&section=search&isFutureVersion=true

hpe.com/us/en/greenlake/telco

Our extreme open technology ecosystem is backed by HPE 5G Lab certification. The HPE 5G Lab is dedicated to increasing the performance of 5G applications. To achieve this, lab engineers have developed deep tuning expertise while collaborating with network technology partners for validation and performance benchmarking. Our telco blueprints are constantly evolving with new tools and optimizations for specific workloads and use cases.

PROTECTING AND SIMPLIFYING YOUR DEPLOYMENT

To help reduce deployment risk, HPE and AMD provide hardware-based security features to help protect your network from core to edge with a minimal performance impact. Innovative security features including the silicon root of trust from HPE help to protect your infrastructure with firmware protection, malware detection, and automatic firmware recovery. By creating a digital fingerprint in the silicon, this feature helps to ensure the server won't boot with compromised firmware. For an added layer of protection, AMD Infinity Guard is built in at the silicon level to help secure your deployment against internal and external threats,[3] helping to ensure the integrity of telco NFV infrastructure. We build native encryption for protected 5G network slicing.

HPE GreenLake cloud services gives you choice in how to utilize your ideal solutions. HPE GreenLake for Telco Service Providers provides a fast, protected, scalable cloud experience when you need it most. You can deliver full services over 5G without making costly up-front investments. Cloud services allow you to align costs to revenues, helping reduce the risk of entering new markets. You gain self-service agility for easy deployment of resources which helps you to avoid expensive overprovisioning, forecast capacity, and easily scale up and down. HPE GreenLake experts can manage the deployment for you, so you can free up resources to focus on meeting the 5G demands of your customers.

CONCLUSION

The future of 5G is an open, cloud-native network that delivers speed, security features, and efficiency today to support digital transformation tomorrow. To make this goal reality, CSPs will increasingly rely on trusted technology leaders to help them deploy and manage a telco cloud infrastructure that is up to the challenge.

HPE has pioneered the use of industry-standard servers in telco networks, creating the category of carrier-grade industry-standard servers. HPE and AMD are first-to-market with validated solutions through leading network equipment providers. This incredible accomplishment has earned HPE the Global Enabling Technology Leadership Award for addressing 5G infrastructure needs.

HPE and AMD are working together to develop solutions to enable extreme telco environments everywhere. HPE Telco Blueprints feature established, enhanced solutions to help you unleash 5G by building better telco clouds, responding quickly to changing business requirements, and operating with the utmost agility, protection, and confidence.

We can help you enhance your telco infrastructure and prepare your network capabilities for 5G. Contact us today to learn more about the AMD EPYC processor-based HPE telco solutions you need to get started with.

LEARN MORE AT

hpe.com/us/en/solutions/communications-industry-transformation

hpe.com/partners/amd

[3] AMD Infinity Guard features vary by EPYC processor generations. Infinity Guard security features must be enabled by server OEMs and/or cloud service providers to operate. Check with your OEM or provider to confirm support of these features. Learn more about Infinity Guard at amd.com/en/technologies/infinity-guard

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