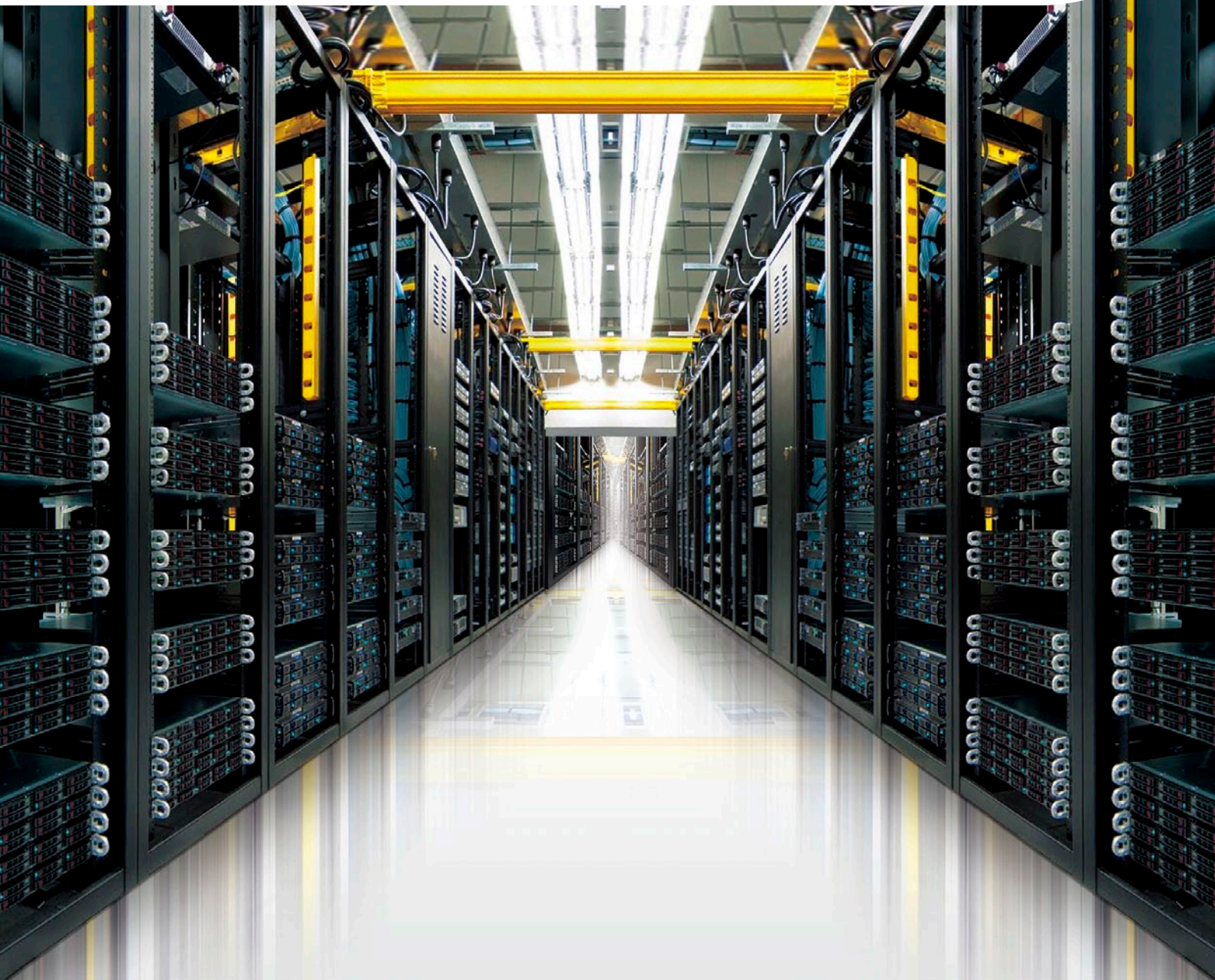


White Paper

# Paving the Way to Flexible, Customer-centric Telco Services with SDN and NFV



Telecom companies face challenges from the Internet of Things (IoT) and cloud demands. They have to follow latest telecommunications technology and maintain telco service revenues while generating new revenues from innovative services. Traditional network frameworks have been built over decades, which is hard to change overnight. Luckily, with software-defined networking (SDN) and network functions virtualization (NFV), the flexible and cost-saving framework simplifies deployment, setup, and maintenance, which help telcos build customer-centric business models with instant and flexible services.

### Cross-Platform Integration with NFV

"Dedicated hardware like routers, switches, and servers in telco facilities serve for fixed duties. Such complex and rigid framework makes it hard to design, install, and configure, let alone catering to ever-changing customer needs. However, SDN and NFV offer unrivalled elasticity and gain tractions from the telecom industry," said Hadwin Liu, Chief Architect of NEXCOM Network and Communication Solutions Business Group.

NFV incorporates multiple servers as a big virtual one in telecom facilities by decoupling the link between hardware and network functions. Using resource management platform like OpenStack, an open-source cloud computing platform, telcos can view hardware resources and set rules based on service demands to provision computing, storage, or bandwidth resources automatically and dynamically.

During telco technology upgrades, NFV quickens deployment of network applications like load balancing, quality of service (QoS), and evolved multimedia broadcast/multicast services (eMBMS). Regarding telco services via customer premise equipment (CPE), under the NFV framework, the next generation CPE with computing

capability serves as a node in telco facilities, allowing telcos to reallocate nodes' resources, to offer security services like virtual private network (VPN), firewall, and unified threat management (UTM) with less capital and operating investments and less time to market. On-line services can flexibly be adjusted based on needs.

### SDN Centralizes Management and Resources

Using SDN concept, NFV based on programmable network frameworks can further facilitate operation and maintenance procedure. SDN separates the control plane from the data plane and adopts software to define network forwarding rules.

With pre-defined algorithms, software dynamically changes how network traffic is forwarded based on individual demand for bandwidth, latency, and reliability while automating the deployment, configuration, and management of networks. Operational and management efficiency are enhanced with the avoidance of human error. Also, SDN frameworks allow operators utilize existing resources without costly hardware purchases. With these benefits, SDN is drawn on by one European telco in its recently proposed network as a service (NaaS) 5G architecture.

NEXCOM has developed network communication platform for SDN frameworks and NFV applications. Besides offering high-performance computing and virtualization technologies, NEXCOM platform supports open-source software to integrate server resources, support network functionality coordination, simplify network frameworks, provide centralized control, and dynamically adjust network performance. It also relieves networking bottlenecks and enhances data exchange speed to cope with heavy telecom workloads, which draw interests from US telcos.

New technology inevitably comes with investment needs for infrastructure upgrades. Paired with virtualization technologies, high interoperability, and flexible scalability, general-purpose, high-volume servers can help telcos

lower capital investment and time for technology migrations. Pillared with SDN and NFV, NEXCOM helps customers enhance competitiveness and satisfaction with customer-centric services, applications and low TCO.



The Intelligent Systems

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Founded in 1992, NEXCOM integrates its capabilities and operates six global businesses, which are Multi-Media Solutions, Mobile Computing Solutions, IoT Automation Solutions, Network and Communication Solutions, Intelligent Digital Security, and Medical and Healthcare Informatics. NEXCOM serves its customers worldwide through its subsidiaries in five major industrial countries. Under the IoT megatrend, NEXCOM expands its offerings with solutions in emerging applications including IoT, robot, connected cars, Industry 4.0, and industrial security.

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