A10

SK Telecom Launches World's First 5G Service, Secured With A10 Thunder CFW

SK telecom

Industry | Telecom

Network Solution

A10 Thunder® ADC
A10 Thunder® CFW
Harmony Controller

Critical Issues

- SK Telecom needed to scale and secure its next-generation 5G-ready network

Results

- Rapidly deployed high-performance, reliable security and carrier-grade NAT (NAT64/464XLAT) for world's first commercial 5G service

- Enabled CGN and Gi firewall on the same platform, with an easy migration path to IPv6

- Delivered an exceptional 5G experience through sustained performance, easy scalability, and superior connection rates

5G promises to transform digital landscapes, creating new experiences and business models that once lived only in our imaginations. SK Telecom, the largest mobile operator in South Korea, launched the world's first commercial 5G service. More than one million subscribers signed-up in a matter of weeks. In less than five months, 3.5 percent of SK Telecom's subscriber base made the switch to 5G. That's twice as fast as its LTE uptake in 2011.

The performance and advanced features of the A10 Networks Thunder CFW PNF persuaded us that we could guarantee high availability of services to our customers. A10 Networks's CFW product was the only solution that satisfied 100 percent of our requirements.

— Se Wook Kim
Director of the Core Engineering Team
SK Telecom

The Challenge:
A Scalable and Consolidated Security and CGN Solution

To quickly scale and secure its next-generation 5G-ready network, SK Telecom wanted a consolidated security and CGN solution that would seamlessly integrate with its virtualized evolved packet core (vEPC) platform. It needed to protect its radio network and Gi-LAN network against sophisticated cyberattacks.

SK Telecom also needed to support subscribers' devices that still used IPv4 addressing, while providing a clear migration path to IPv6 at the edge. The boom of IPv6 devices is coming, with IoT, augmented and virtual reality, connected cars, smart cities and smart factories, and telemedicine, and SK Telecom needed to be ready.

"SK Telecom started the world's first 5G commercial service on April 3, 2019. We are very satisfied with the performance and stability of our initial 5G services and the network operations moving towards hyper-connectivity," says Se Wook Kim, director of the core engineering team of SK Telecom.

> *"We have prepared a lot for this over the years. For the 5G infrastructure that theoretically provides broadband wireless data service up to 20 Gbps, SK Telecom rebuilt the entire network including core/edge routers, vEPC, gNBs with ultra-high-capacity, super-low latency and high-reliability to meet with the 5G standard," he says.*
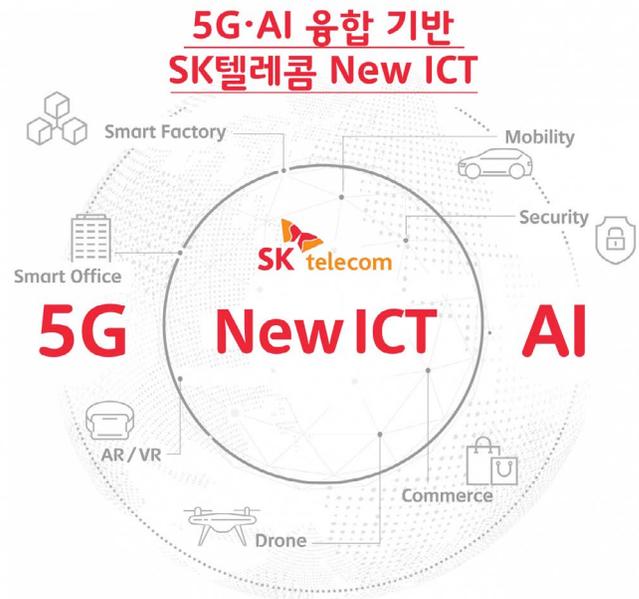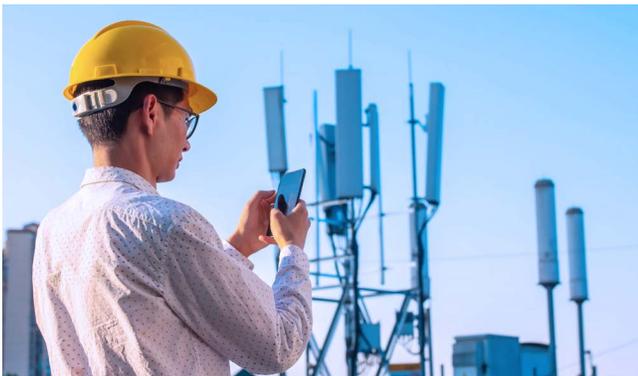
SKT 5G Based New ICT Service

Selection Criteria

SK Telecom needed a high-performance, reliable, and scalable solution for carrier-grade network address translation (CGN) and Gi-LAN firewall. Requirements were stringent: The solution needed to consistently deliver 200 Gbps throughout. It had to simultaneously support one million subscribers per square kilometer and handle more than 135 million sessions per second. With planned and future applications, latency had to be extremely low.

A10 Networks Thunder® CFW (Convergent Firewall) had proven its reliability and performance in SK Telecom's 4G/LTE network for five years, and again proved itself in extensive proof-of-concept testing for 5G. Ultimately, SK Telecom chose Thunder 6440 CFW for its 5G Non-Standalone (NSA) network, which provides dual 4G-5G connectivity. SK Telecom also uses A10 Networks Thunder 6440 ADC (Application Delivery Controller) to enhance 5G application availability.

The A10 Solution

> *"For the mission-critical IP services using 5G, we decided to deploy A10 Networks Thunder CFW because of its superb performance, functionality and highest reliability," says Kim. "It was a superior choice."*

Thunder CFW provides a unique combination of multiple security functions in a single product—a highly scalable, high-performance firewall, IPsec VPN, secure web gateway, and carrier-grade NAT with integrated DDoS protection. Thunder CFW provides address translations between IPv4 and IPv6 as well as an advanced Gi-LAN firewall to protect SK Telecom's mobile packet core.

Thunder CFW is a physical hardware platform that supports up to 300 Gbps throughput, 512 million concurrent sessions per second, and CGN. Dynamic deep packet buffers support micro-burst traffic spikes, avoiding congestion on the network.

The A10 Networks Harmony Controller® analytics and management solution connects and manages all the Thunder CFW devices in SK Telecom's 5G network. With the A10 Harmony Controller, SK Telecom's network operations teams can view real-time traffic trends and data by source, app, and service based on accurate analysis and end-to-end statistics. This simplifies remote troubleshooting, lifecycle management, and forecasting expansion as 5G traffic increases.

"The higher performance and more advanced features of the A10 Networks Thunder CFW PNF were a key part of our conclusion so we could guarantee the quality of services," says Se Wook Kim. "A10 Networks' high reliability, which was proven in our 4G/LTE service network over the past years has shown the best performance in handling not only NAT44 but also NAT64 traffic with no service interruptions. A10 Networks was the only solution that satisfied 100 per cent of our requirements."

Quantifiable Results Achieved

South Korea is leading the world with 5G services, and SK Telecom has captured a first-mover advantage. Early adopters of 5G are heavy-duty users, with subscribers consuming 65 percent more data than on SK Telecom's 4G/LTE service. The arrival of more 5G-capable phones will fuel consumption.

SK Telecom's initial 5G coverage is concentrated in urban and highly populated areas like universities, high-speed trains, highways, and metropolitan subways. The company plans to provide 5G service to national subways, parks and festival sites later in 2019.
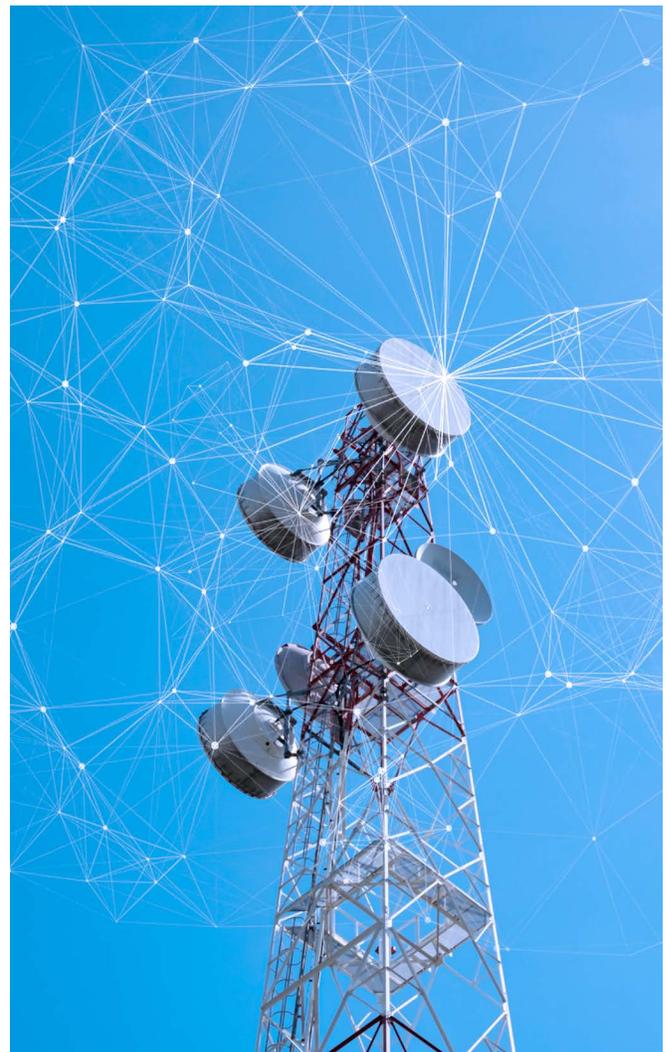
Success and Next Steps

The 5G experience is transformative. Racing fans can watch a heart-pounding live stream from the cockpit of a race car moving 210 kph around a track. 5G 8K televisions will change the viewing experience. Cloud gaming will be immersive and seamless. 5G autonomous robots will improve security and safety. The possibilities are limitless.

And with A10 Thunder CFW as a trusted element in its network, SK Telecom can be confident in security and scalability as its 5G usage grows.

About SK Telecom

SK Telecom is the largest mobile operator in Korea with nearly 50 percent of the market share. As the pioneer of all generations of mobile networks, the company has commercialized the fifth generation (5G) network on December 1, 2018 and announced the first 5G smartphone subscribers on April 3, 2019. With its world's best 5G, SK Telecom is set to realize the Age of Hyper-Innovation by transforming the way customers work, live and play.

Building on its strength in mobile services, the company is also creating unprecedented value in diverse ICT-related markets including media, security and commerce.

The State of DDoS Weapons Report

Download Report

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A10 Networks Difference

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About A10 Networks

A10 Networks (NYSE: ATEN) provides secure application services for on-premises, multi-cloud and edge-cloud environments at hyperscale. Our mission is to enable service providers and enterprises to deliver business-critical applications that are secure, available and efficient for multi-cloud transformation and 5G readiness. We deliver better business outcomes that support investment protection, new business models and help future-proof infrastructures, empowering our customers to provide the most secure and available digital experience. Founded in 2004, A10 Networks is based in San Jose, Calif. and serves customers globally.

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