

Moving Beyond the Traffic-based Business Model

Zain Group is a leading Kuwaiti mobile telecommunications company, and a provider of innovative technologies and digital lifestyle communications. Mordi Al-Rashed, ICT Director at Zain Group, details Zain's intelligent transformation through the use of AI technology in its core network, and how this is enabling new business models to optimize user experience and improve operation efficiency.

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Leader in Intelligent Optimization of Network and Services in 5.5G Era

Zain Group has been at the forefront of technological advancements in the telecommunications sector, playing a significant role in shaping the future of mobile networks in the Middle East and beyond. With a commitment to providing world-class services, Zain has consistently embraced cutting-edge technologies to enhance user experiences and drive service innovation. As a pioneer in the region, Zain Group has successfully deployed a wide range of solutions across its networks, ensuring that the company stays ahead of the curve in the competitive 5G landscape.

The launch of 5G services was a pivotal milestone for Zain, marking the company's commitment to enabling next-generation connectivity. In Kuwait, Zain became the



“5G-Advanced key infrastructure investments drive refreshed market growth and industry digitalization.”

first operator to launch Voice over New Radio (VoNR), a key advancement in 5G technology, which ensures seamless voice and data services in 5G environments. The deployment of the first New Calling service in Kuwait also demonstrates Zain's innovative approach, integrating AI with traditional voice services to offer richer, more personalized experiences to users.

Looking to the future, Zain is pushing the boundaries of 5G with plans to deploy Network Data Analytics Function (NWDAF) in Saudi Arabia, enhancing network intelligence and service optimization. Moreover, the company is preparing to implement Management Data Analytics Function (MDAF) as part of its strategy to drive further efficiencies in network management. These initiatives underline Zain's leadership in the 5G-Advanced era, where AI and data analytics will play critical roles in optimizing operations and delivering next-generation services.

Enabling New Business Models with Intelligent 5.5G Core

As we move beyond 5G into the 5G-A era, the role of the core network becomes even more pivotal. The evolution of the core network is key to enabling the next wave of service innovation. Zain Group recognizes that in this fast-evolving landscape, core networks must be flexible, intelligent, and capable of supporting a wide range of services, from traditional mobile connectivity to new applications driven by AI and the trend to connect all entities in the physical world and virtual world.

The core network is not just about connectivity; it's about enabling new business models. For years, the telecom industry has relied on traffic-based monetization models. However, as traffic growth slows and revenue stagnates, operators like Zain are shifting towards experience-based

operations. This transition is driven by the growing demand for ultra-high bandwidth, ultra-low latency, and personalized user experiences. Zain is leveraging the capabilities of its advanced core network, which incorporates both 5G and 5G-A features, to meet these requirements.

The integration of AI into the core network enables operators to enhance service delivery through machine learning, cognitive networks, and intent-based technologies. For example, the use of NWDAF to aggregate network data and apply machine learning algorithms allows Zain to predict and optimize network performance in real-time. This helps deliver the high-quality, low-latency experiences that consumers increasingly expect, creating new opportunities for service differentiation and revenue generation.

The introduction of AI-driven services like New Calling is also a significant milestone in this transformation. By incorporating AI into calling services, Zain is not just enhancing voice communications but transforming them into rich, multi-modal experiences. As mobile AI continues to evolve, New Calling allows operators to offer personalized, intelligent voice services that meet the unique needs of users, further driving interactive service monetization.

Service Intelligence: Enhancing the Voice Core with New Calling

One of the most exciting developments in the 5G-A era is the ability to enhance traditional voice services with intelligent capabilities.

During the Gulf Cup, Kuwait launched the screen lighting service based on the New Calling solution. During the call, on the background screen, subscribed users will see short videos such as game schedules and replays.

The New Calling platform can integrate AI apps or services, with the integrated AI technologies providing a smarter, more personalized experience for users. Whether it's through interactive calling, visualized voice,

or seamless integration with third-party applications, New Calling is redefining how users interact with voice services.

New Calling's AI-powered capabilities enable operators to offer smarter calling features, such as personalized voice assistants, contextual information, and integrated media services. For example, users can receive real-time translations during international calls or access interactive voice-based services without needing to dial a number. This shift from basic voice to AI-enabled services is a game-changer, not only enhancing user experiences but also creating new business models for operators. By shifting from a voice-centric to a content-driven business model, operators can tap into new revenue streams and deliver more value to their customers.

As AI continues to develop, the opportunities for operators to enhance their service portfolios will only grow. The integration of cognitive networks, which apply mobile communications expertise to big data analytics, will allow operators like Zain to further explore things like intent-based communication and natural language interaction. AI will continuously improve the performance of voice services, enabling operators to provide a truly intelligent, dynamic service experience that evolves with user needs.

Network Intelligence: Optimizing User Experience

The 5G core network is not just about the speed and connectivity; it's about delivering a seamless, high-quality user experience. With the ever-increasing demand for high-bandwidth applications such as gaming, high uplink broadcasting, AR, and VR, network intelligence is crucial to ensuring that users receive the best possible experience across diverse use cases.

In Saudi Arabia we have focused a lot on enhancement of gaming experience. Saudi Arabia is building a global hub for the game and e-sports industry as a national strategy. In partnership with Huawei, we are working on HomePlayAccess service, part of the Mobile Home family of solutions, ensuring the gaming experience of

PSP users who are outside their homes. This is a sort of gaming VPN service that enables users to enjoy simplicity and performance of home wireless network outdoors, away from the comfort of their home.

Zain Group's focus on network intelligence centers on optimizing network performance through real-time data analytics and AI-driven insights. By leveraging NWDAF and AI, Zain can dynamically adjust network resources to meet user demands, ensuring a smooth experience even during peak traffic periods. Additionally, cognitive network technologies enable Zain to improve its network's ability to predict and respond to user needs, creating a more responsive and efficient service.

The integration of AI into the core network enhances not just the quality of the user experience but also the efficiency of the network. By continuously monitoring user behavior and network conditions, Zain can ensure that resources are allocated intelligently, preventing congestion and minimizing latency. This ability to optimize user experience in real-time is essential as applications become more demanding and user expectations continue to rise.

Automation: Improving Operational Efficiency

Operational efficiency is another critical area where AI and advanced network capabilities are making a signif-



icant impact. The rapid evolution of mobile technologies, particularly the shift to 5G and 5G-A, has increased the complexity of network operations and maintenance (O&M). However, the growth of AI and automation offers new opportunities to streamline O&M processes, reduce costs, and improve network reliability.

Zain has embraced AI to enhance its O&M capabilities, focusing on hyper-automation, self-healing, and self-optimization. These technologies allow Zain to automate routine maintenance tasks, predict potential network issues before they occur, and ensure that the network is always operating at peak performance. By using AI to monitor network health and automatically adjust configurations, Zain can reduce manual intervention and human error, leading to more efficient and reliable network operations.

Moreover, Zain is carrying out joint innovation with Huawei for AI-driven network maintenance. These AI-driven solutions will enable more proactive network management, helping Zain address the growing demands of network complexity without increasing operational costs. With these AI-powered solutions, Zain is positioning itself as a leader in network automation efficiency, ensuring that it can meet the challenges of the 5G-A era with confidence.

Moving Toward a Fully AI-Defined Future

The next-generation 5G-A network is designed to be much more versatile, connecting a wide range of services, from IoT and industrial applications to consumer mobile services. Zain recognizes that to remain competitive, it must embrace this convergence, connecting its network with a variety of industries and services to create new business opportunities.

The rise of Network as a Service (NaaS) is a key enabler of this convergence, offering industries customized network capabilities that are proactive, flexible, and resource-isolated. This approach allows Zain to deliver tailored network solutions for different sectors, whether it's smart cities, healthcare, or oil and gas industries. By le-



veraging its advanced 5G core network, Zain can provide the necessary infrastructure to support the growing demand for connected services, paving the way for a more intelligent and interconnected future. In this respect, Zain has developed its group technology blueprint that recommends open network API NaaS model development through industry standards for network APIs (3GPP, ETSI, TMF, etc.) and service APIs (Camara, GSMA, etc.).

As mobile computing power becomes more integral to the 5G experience, Zain is exploring the use of distributed edge computing to support a variety of business use cases. From video streaming and cloud gaming to industrial IoT applications, Zain's 5G-A network will provide the necessary computing resources to support these demanding services. Additionally, AI-driven scheduling and resource management will ensure that these services receive the appropriate computing power, improving resource efficiency and service quality.

Moreover, with the integration of AI, Zain is positioning itself to offer more personalized, intelligent experiences to users. By understanding individual preferences and behaviors, Zain can tailor its services to meet the specific needs of each user, further enhancing user satisfaction and driving new business opportunities.

Looking toward the future, Zain is committed to leading the change in creating an AI-defined future. Through its innovative approaches to 5G and beyond, Zain is laying the foundation for a new era of mobile connectivity, one that integrates AI, automation, and personalized services to meet the needs of a rapidly evolving world.

Zain's focus on enhancing core networks, service delivery, and operational efficiency through AI will enable the company to continue offering exceptional user experiences while driving business innovation. As AI continues to evolve, Zain is well-positioned to lead the telecommunications industry into a more connected, intelligent, and efficient future, where services are more personalized, intelligent, and accessible to everyone, everywhere.

By embracing the AI-driven future of 5G and beyond, Zain is not just transforming its own network — it is setting the stage for an entirely new era of intelligent connectivity.

