

ZTE CloudStudio (GSO) enables intelligent network slice management


The 5G era is approaching. In order to meet the endless application requirements of telecom operators' 5G networks, the implementation of 5G network slicing technology is indispensable. Operators need to deploy network slices according to vertical industries (such as AR/VR, Internet of Vehicles), different regions, virtual operators, etc. To this end, the orchestration system of network slicing becomes an important end-to-end management link involving RAN (Radio access network), TN (transport network), and CN (core network). The network devices involved in network slicing may be provided by different vendors, further embodying the urgency of introducing end-to-end management links.

ZTE network slice management system CloudStudio (GSO) solution is responsible for the E2E layered network orchestration and Slice/NS/VNF lifecycle management, to achieve the orchestration and management of network services. It is based on AI (artificial intelligence) technology and automation software architecture to provide the E2E slice capability for telecom networks. In addition, it is equipped with mass data processing capability for telecom operation, to implement full network autonomy without any manual intervention.



ZTE CloudStudio (GSO) carries out the following technologies:

RAN/TN/CN sub-net slice enabling technology achieves the E2E instantiation capability of RAN/TN/CN sub-net slice; **network slice identifier and access technology** achieves the mapping between network slice instance and terminal service, and registers the terminal to the correct network slice instance; **E2E network slice management technology** achieves the E2E orchestration and management of network slices, including slice design, orchestration, test, deployment, monitoring, policy analysis, root cause analysis, fault recovery and so on; **E2E network slice SLA assurance technology** is used for collecting, analyzing and processing network KPI to guarantee the system performance meeting the user' s SLA requirements.



ZTE CloudStudio is a future-oriented automated, intelligent and open operation and maintenance (O&M) system. By adopting proper NFV technologies, it enables competitiveness achieved by internal software.

Jenkins work flow: Developed based on the open source Jenkins work flow technology, CloudStudio becomes the industrial-leading automated O&M structure.

DevOps: CloudStudio uses DevOps to promote the agile development and deployment of innovative services. It is featured in on-demand design, automatic deployment, SLA assurance, intelligent analysis and forecasting, secure isolation and tenant management.

AI algorithm: By virtue of ZTE's rich telecom experience, CloudStudio optimizes Apriori, FP-growth, Prefix-Span and other AI algorithms to build the telecom neural network, and to continuously automatically optimize network model and policy design.

Microservice structure: CloudStudio supports VM and container deployment. It uses the microservice architecture to deconstruct NFs into services. The openness of network service capabilities and external programmable interfaces are conducive to rapid development of innovative applications.

Based on these realization technologies, ZTE CloudStudio (GSO) provides massive innovation capabilities. For example, the open source algorithms Apriori and Prefix-Span which are used for realizing RCA (Root Cause Analysis) have some weaknesses (e.g., not able to find correlation rule when alarms distribute unevenly). Therefore, ZTE CloudStudio (GSO) redefines and improves relevant computing algorithms to effectively explore correlation rules of low and medium frequency alarms, to significantly improve the precision of rule mining.

In the network management architecture of modern communication industry , there are multiple standards in the industry. For example, 3GPP and ETSI define different management function nodes (such as EMS, NFVO, VNFM, CSMF, NSMF, NSSMF), and so many management nodes result in the complexity of O&M . ZTE CloudStudio (GSO) can integrate these management function nodes into a unified platform. Different components can be flexibly combined to form functional nodes that meet operators' O&M habits. This greatly reduces the complexity of O&M due to the introduction of new management nodes. ZTE CloudStudio solution enables intelligent network slice management to help operators enter the era of 5G IOE (Internet of Everything).