



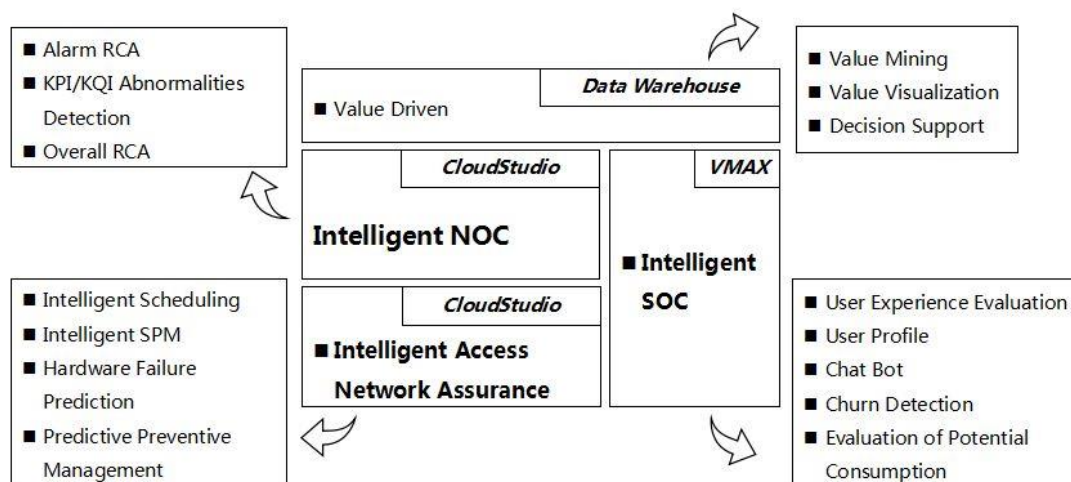
## **ZTE AIOps solution enables 5G-ready network transformation**

In the era of 5G, the operators can provide more diversified and low latency service experience to the end user by providing different kinds of network slices and constantly securing the SLA/QoS for each scenario. The major source of income of operators will be changed from direct selling of voice Erlang and data throughput to common users, to cooperate with the vertical industries and provide services with the different combination of SLA/QoS standards, such as latency, throughput and amount of IoT connections.

For the operation teams, their main job will become to ensure these are achieved in the live network.

However, as stated in above, the future 5G network may contain dozens of dynamic network slices with different SLA/QoS requirement, and more physical sites, these factors will result the work load of the operation team to increase by large and hence difficult for operation teams to control the OPEX. In order to solve this problem, the industry expect that the AI will widely infiltrate to all aspects of the operation, these AI applications must be supported by a more intelligent OSS to improve the operation efficiency and the level of automation.

ZTE publishes its uSmartNet AIOps solution, which is able to provide a comprehensive intelligent operation solution from field service to full network value driven under Pre5G and 5G network. This solution is based on AI technology and big-data platform; performs the deep mining of the network, service and user data in multiple dimension; achieves cross domain resource integration, dynamic resource scheduling, dynamic threshold adjustment, intelligent root cause analysis and etc. This solution can strongly support the transformation of manual operation to full automation.

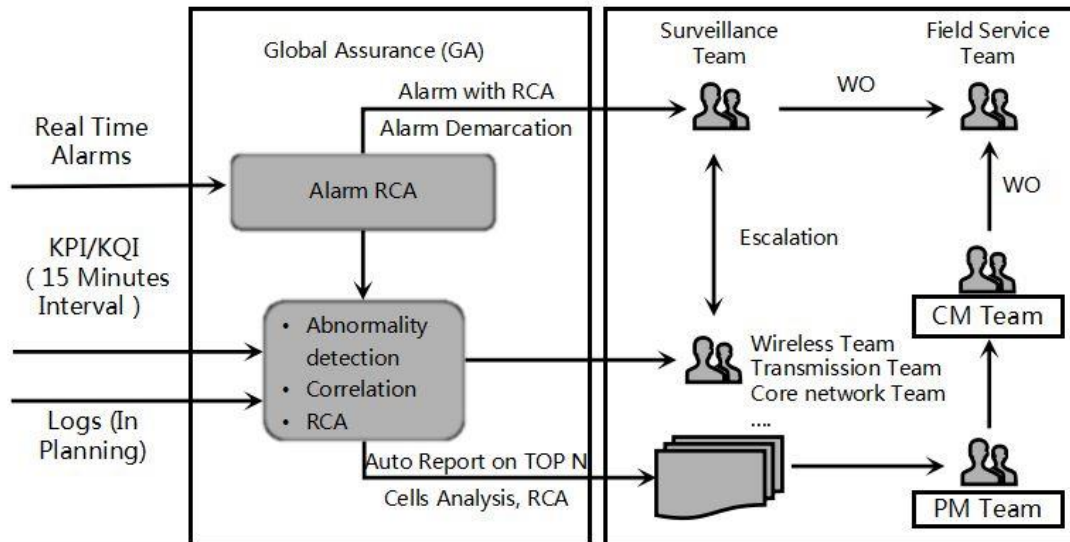


## Intelligent NOC

Together with the dramatic increase of the amount of network equipment and services, the traditional way of NOC operation is lacking the efficiency and unable to control the service quality under the dynamic environment. This intelligent NOC solution can use the related AI engine and perform the analysis of network data, predict potential risks, improve the accuracy of the prediction and hence achieve the transformation from traditional NOC to intelligent NOC based on AI. This intelligent AIOps solution can drive the 5G system, service platform, and related module (such as Global Assurance, Global Inventory, and Global Provisioning) to maximize the visualization of 5G operation, resources, deployment and configuration of services. The 5G daily operation can achieve end to end automation and improve the production efficiency.

The function abnormality detection can automatically detect and analyze the abnormality of the service QoS or other KPIs, and deduce possible root cause. The function is also linked with the automatic RCA function, which can correlate the abnormality with the know alarms, improve the accuracy of the root cause analysis. The result of which will be inserted into AI data base for further reference.

The root cause analysis adopts multiple machine learning algorithms, achieved cross layer and cross domain root alarm and root cause analysis, the result of which can correlate with the abnormality of the performance and be able to reveal the effect on network slices and drive the 5G service system platform to invoke the right policy and perform self-healing.




## Intelligent assurance of access network

In the 5G era, as the bandwidth and coverage requirement is higher, the number of physical site will be increased by large and hence the 1<sup>st</sup> thing that operation team should improve is the efficiency and accuracy of the scheduling of work orders.

In order to achieve this, the AIOps provides 3 major modules, they are intelligent scheduling, fault prediction and intelligent SPM. The intelligent scheduling adopts AI algorithms such as genetic algorithm and ACS, which can dynamically achieve the optimal scheduling of the tasks and resources considering many aspects such as SLA, skill level, travel routes and etc. The Intelligent SPM function and the fault prediction function can predict the proper amount of stock for local warehouses and possible cause of the future problem based on historical alarm and root causes, guide the field team to schedule preventive check and reduce the number of failures.

## Intelligent SOC

With the fast development of the digital services in recent years, many of the operators' focus points have changed from network quality to service quality and customer experience,



and some of the operators have developed SOC (Service Operation Center) for service quality monitoring and control. In the era of 5G, it is expected that many of the vertical industries will take the chance to evolve their service, create new service, or service model. For operators, it is essential to be able to identify the right opportunity, quickly develop the appropriate service slices, and ensure the QoS of which are as required by the industries. In these aspects, AI will be widely adopted to perform analysis on huge amount of data and help the operation team and marketing team in decision making. ZTE SOC has the following solution in AI:

- Linking user profolio and user behavior, dig out the potential value
- Linking user experience with service KPIs, find out hidden problems
- Quickly locate the problem of the user, automatic ticket issuing and enable the pre-handling of the problem
- Close loop service quality issue handling and efficiency improvement

ZTE uSmartNet AIOps solution has been trailed in many operators, helped them to cut down the time, workload, resource expenditure in function and service links, improve the network quality, shrink down the time of fault handling, greatly improve the operation efficiency and hence enable the close loop automation in many aspects of operation. Overall, it can greatly accelerate the level of automation and intelligence of your operation.