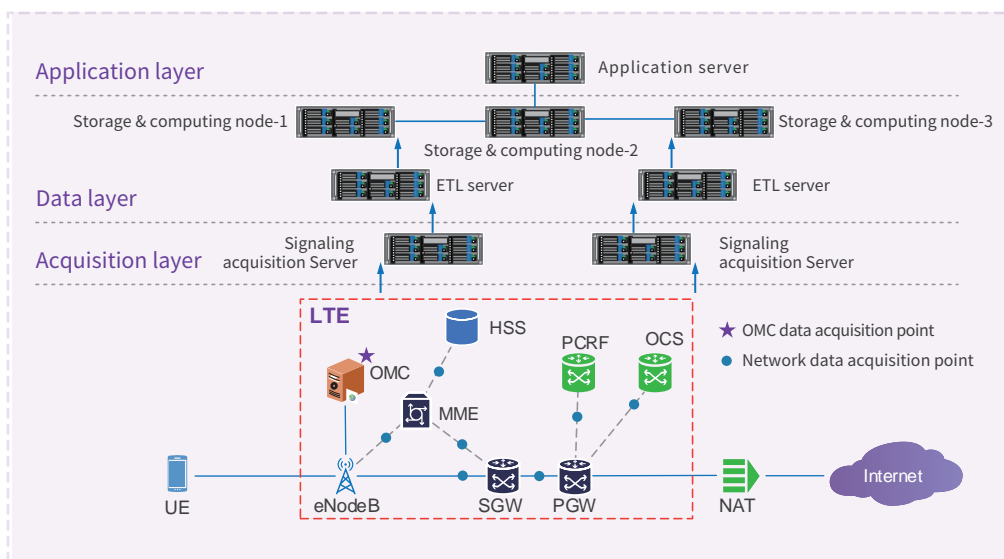# 2/3/4G

Service *Awareness* Analysis System

Solutions

Deployed on the network side of operators, upon DPI(Deep Packet Inspection) technology，it parses mobile core network' s signaling and original service data packets , and realizes end-to-end data association with wireless OMC data. Based on the 2/3/4G service awareness and analysis model, locate the cause of inferior network quality indicators; guide the operators' network optimization & network planning, and the vendor's equipment optimization; and solve the issues such as 'webpage loading' , 'video buffering ' and '   games dropping' to improve network service capability and enhance user experience of surfing the Internet.

Deployment Position

This product is designed to be deployed into the mobile operators' 2/3/4G network. Through DPI technology's data acquisition and analysis functions, it provides support and service capabilities for mobile operators . The right figure shows a deployment case in 4G network.

Application layer — Application server
Storage & computing node-1 — Storage & computing node-2 — Storage & computing node-3
Data layer — ETL server — ETL server
Acquisition layer — Signaling acquisition Server — Signaling acquisition Server

LTE
HSS
OMC
PCRF OCS
MME
★ OMC data acquisition point
● Network data acquisition point
UE — eNodeB — SGW — PGW — NAT — Internet

Core Functions

01 | Perception assessment
1. Network assessment
2. Service assessment
3. Terminal evaluation
4. User evaluation

02 | Intelligent judgment of fault
1. Reconstruct procedure
2. Inferior quality screening
3. Event analysis
4. Problem closed-loop

03 | Network early warning
1. Real-time monitoring
2. Quality early warning
3. Capacity early warning
4. Awareness early warning

04 | Horizontal support
1. Customer service support
2. Planning support
3. Market support
4. Quality assurance support

GREENET
INFORMATION SERVICE

▽ Product **V**alue

Simplify procedure	• Create an end-to-end awareness big data analysis platform, rebuild the integrated procedure of 'construction, maintenance, and optimization' , and provide automated closed-loop management. • Locate the inferior quality areas based on massive user data, make the optimization more purposeful, and evaluate and verify the optimization effect more obvious.
Improve efficiency	• Establish early warning mechanism of inferior quality areas, early warning mechanism of inferior quality users, and effectively reduce user complaints. • Quickly locate the network issues, and improve customer service efficiency. • Use intelligent judgment analysis algorithm to improve network optimization efficiency.
Reduce investment	• Based on the end-to-end awereness model, establish a horizontal support mechanism, achieve precise capacity management, serve planning and construction, and reduce investment. • Establish a big data mining system, accurately portray user, support precision marketing to achieve marketing revenue.

✪ Product **C**haracteristics

▣ **Intelligent**	✓ **Safe**	✎ **Customizable**	⏱ **Efficient**
Based on intelligent judgment analysis algorithm , the product can judge the faults of user equipment, RAN, bearer network, core network and service platform, etc., and automatically give conclusions and sugges-tions .	It has the network management monitoring capability, provides real-time monitoring of the acquisition device and the storage & computing clusters, and can give alarms through web pages and emails to locate faults and take timely measures.	It can be applied to scenarios such as high-speed rail, express-way, colleges, huge flow, high-density and metro, significant event safeguard scenarios and VIP customized awareness service.	The original loading technology ensures orderly, parallel and high-speed data access, with a single node loading speed about 20TB/day; and distributed intelligent indexing provides good load balance performance and ensures efficient statistical analysis.

▤ Product **C**ases

Status of operation	With the arrival of 4G unlimited data plan, mobile data traffic has increased dramatically. Accordingly, mobile users have more and more complaints about inferior surfing experience and network availability. The front line customer service staff lacks effective support approach to locate the problem, and the complaint handling efficiency is low; operators need support mechanism to put the customer service capability forward and improve process efficiency.

4G Service awareness analysis system

Solution

• The 4G service awareness analysis system interface is connected with the operators' customer service center to put the customer service capability forward. Problem Location is factorized. Factor library is enriched during continuous practice. Unify customer service verbal trick and effectively improve handling efficiency of customer complaints.

Product benefits

• The 4G service awareness analysis system interface is connected with the operators' customer service center to put the customer service capability forward.
• Factor analysis has accumulated experi-ence in handling complaints and enriched the experience base.
• Unify customer service verbal trick and effectively improve handling efficiency of customer complaints.