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Cellular Communication
Mobile Operatory

About IEI (Iran Electronics Industries)

Iran Electronics Industries (IEI) as the largest company in the fields of Electronic, Telecommunica- tion, Defensive and Commercial Electro optics in the country meanwhile, industrial and technical interactions with more than 170 technological companies and establishment of 14 technological joint centers with domestic authentic universities, provides types of electronic products and services such as Radar, Electronic Warfare (EW), IT, Secure and Reliable Communication, Optics and Laser, Cyber defensive, Electronic Components, and required Space Systems for military forces and de- fensive industries in order to establish and increase the deterrent power and defense.



About ICI (Iran Communications Industries)

Iran communications industries (ICI) affiliated to Iran Electronics Industries (IEI) was established in 1972 with more than 35 years of credible reputation directed to manufacture diversity of communica- tion means and participate in all international tenders with over 1000 skilled and educated personnel and lustrous background of successful experience is the main producer and designer of military/ paramilitary communication equipment and total solution in Iran and middle east.

The principal mission of ICI is researching, designing and manufacturing various types of communi- cation systems in military/non- military fields; as well as designing and implementing total solutions such as EW, C4I, jamming networks and ECCM systems in order to establish a stable, secured and flexible communication with a suitable capacity and also developing and open architecture radio waveform technology that allows multiple radio types to communicate with each other with the goal of meeting diverse communications through the latest and state of art technology communication means & networks.

Also ICI has the capability of repairing, renewing, manufacturing and assembling different types of communication means, as well as providing after sales services and technical consulting to have a continual improvement and development.

Effective presence and implementing national projects in the fields of communication with the co- operation of IN/OUT companies and exporting various kinds of communication products, technical engineering services to foreign countries are important pace in renewing and developing our na- tional industry.

Concentrating on time, cost and quality management, developing human resources, and staff moti- vation are our main purposes.

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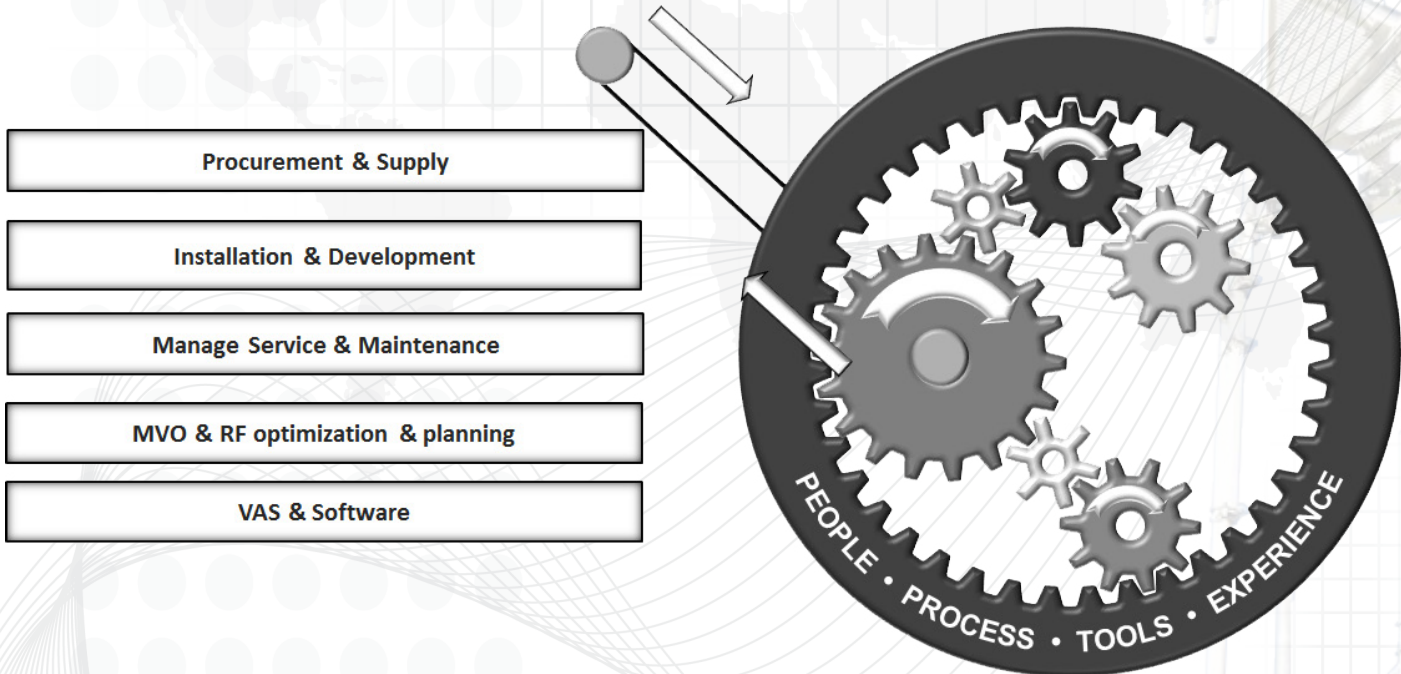
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Mobile Operator



Procurement & Supply



In addition to it's local products, ICI company has a close and excellent cooperation with famous vendors and world-renowned manufacturers of mobile operator equipment through it's capable and experienced Procurement & Supply Department.

Installation & Development



Abilities

- ✓ Having an extensive supply network in Asia, Europe, the Middle East and North Africa
- ✓ Ability to supply all equipment and network components of mobile operators
- ✓ Strategic supplier for many mobile operators in Iran and abroad
- ✓ Fast and safe delivery in the shortest possible time
- ✓ Proper support and after sale service



- ICI is the first company in Iran which cooperated with IRC from the beginning of project so we know all of project steps, we have available team now with dividing part such as SA, CW, TI, Acceptance and
- ICI team included professional guys in field with enough experience for all of site construction part
- ICI is aware of MNO Concerns of target for each months and organized to achieve the plan



Some Experiences

Project Name	Client
Establishing Network of 2 nd Operator in 13 Provinces (BSS-ph4-7)	2 nd Operator (MNO Irancell)
(BSS-ph0-2) Establishing Network of 2 nd Operator in 13 Provinces	2 nd Operator (MNO Irancell)
Amendment to) Establishing Network of 2 nd Operator in 13 Provinces (BSS-ph3	2 nd Operator (MNO Irancell)
GSM/WLL Network in Villages (West Azerbaijan Province) Establishing	Company of West Telecommunication Azerbayejan
(Khorasan Razavi) GSM/WLL Network in Villages Establishing	Company of Telecommunication Khorasan Razavi
(BSS-Exp(Ph1-3)) Establishing Network of 2 nd Operator in 13 Provinces	2 nd Operator (MNO Irancell)
7 (70 -4 BSS Ph) Establishing Network of 2 nd Operator in 13 Provinces (Sites)	2 nd Operator (MNO Irancell)
(BSS-ph0-4) Establishing Network of 2 nd Operator in 13 Provinces	2 nd Operator (MNO Irancell)
(BSS-ph4) Establishing Network of 2 nd Operator in 13 Provinces	2 nd Operator (MNO Irancell)
(BSS-ph4-7) Establishing Network of 2 nd Operator in 13 Provinces	2 nd Operator (MNO Irancell)
In Building System (IBS Exp)	2 nd Operator (MNO Irancell)
(BSS-ph5) Establishing Network of 2 nd Operator in 13 Provinces	2 nd Operator (MNO Irancell)
(IBS) In Building System	2 nd Operator (MNO Irancell)
(Done) TKS project included 26 sites in Tehran province	2 nd Operator (MNO Irancell)
TKS project in Tehran and around it (in process)	2 nd Operator (MNO Irancell)
Relocation Project in Tehran province(in process)	2 nd Operator (MNO Irancell)

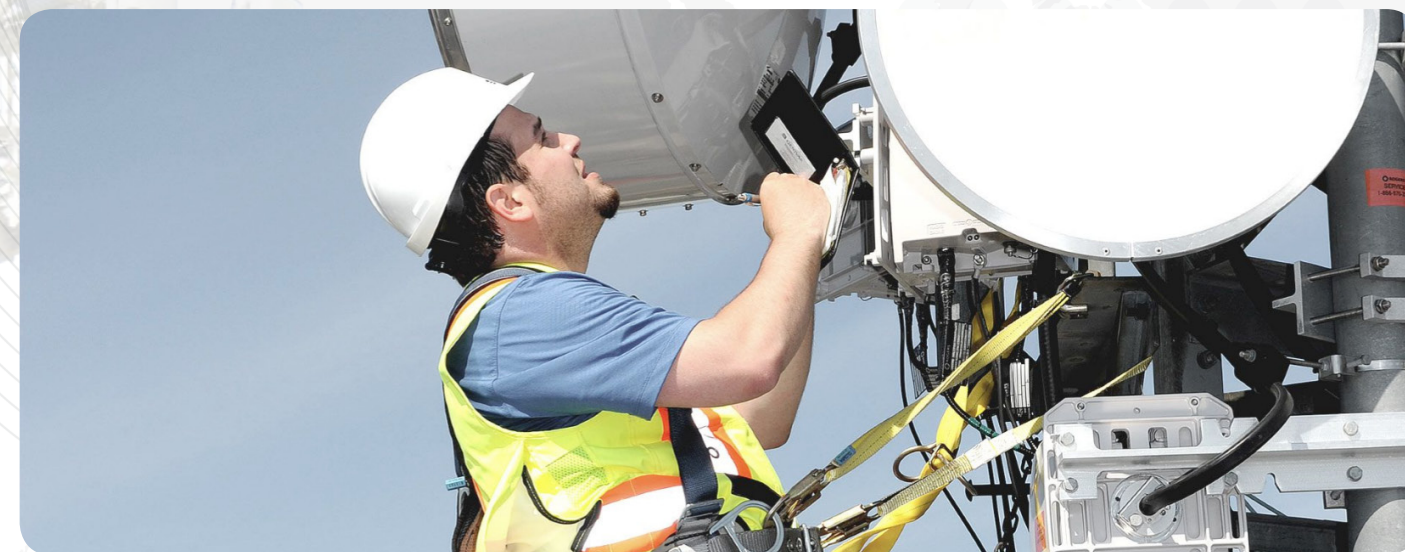
Some Experiences

Project Name	Client
Metro Transmission	2 nd Operator (MNO Irancell)
NGSDH	ICT Ministry
Metro Transmission Equipment	2 nd Operator (MNO Irancell)
Metro Transmission Equipment Exp	2 nd Operator (MNO Irancell)
ADM and SYNCH (Ph4-7)	2 nd Operator (MNO Irancell)
((ADM ph1(Add-drop Multiplexers)	2 nd Operator (MNO Irancell)
ADM main(Add-drop Multiplexers)	2 nd Operator (MNO Irancell)
((Add-drop Multiplexers)\' ADM phase)	2 nd Operator (MNO Irancell)
ADM phase 4-7(Add-drop Multiplexers)	2 nd Operator (MNO Irancell)

Manage Service & Maintenance



- Cohesive structure of field and operational teams to maintain radio sites in Iran and abroad
- Capable experts for maintenance and repairs in the Core layer, remotely or on site
- Extensive network of subcontractors inside Iran and abroad
- Upgrading, supplying and updating software licenses
- Providing 24*7 maintenance and support services



Some Experiences

- ICI Company has been worked as Managed Service company of 2nd Operator in Iran (MNO Irancell) for 4 years.
- 1st operator in Iran (MCI company) managed service project is in hand of ICI company since Nov 2019.
- 3rd operator in Iran (Rightel company) managed service project is in hand of ICI since Feb 2019.
- ICI is responsible for many care and maintenance projects in the Middle East.

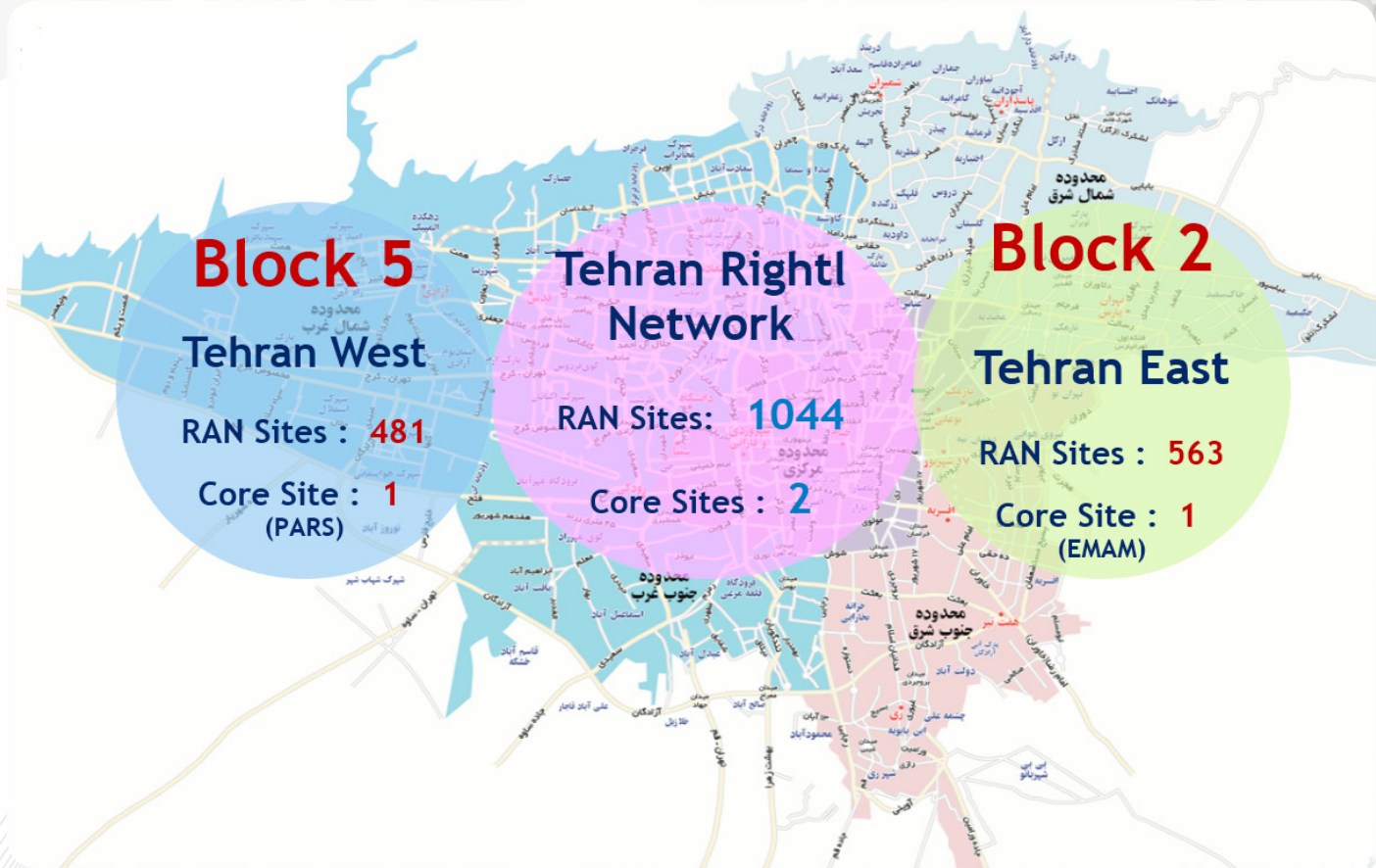
Some Experiences

Project Name	Client
Managed Services - Managed network Services and maintenance all of network equipment (BSS&Core)	2 nd Operator (MNO Irancell)
Security Operation Center	Telecommunication Infrastructure Co
Managed Services (Maintenance BSS Part of 2 nd operator network)	
Amendment of Managed services	2 nd Operator (MNO Irancell)
Communication Systems (Telemetry, CCTV,...)	Oil Co
Amendment RBT (Ring Back Tone)	2 nd Operator (MNO Irancell)
BSS Maneged service	2 nd Operator (MNO Irancell)
RBT (Ring Back Tone)	2 nd Operator (MNO Irancell)
Managed Services - Managed network Services and maintenance all of network equipment (BSS&Core)	2 nd Operator (MNO Irancell)
Maintenance of 1045 sites in Tehran city (in process)	3 rd Operator (Rightel)
Maintenance of 350 sites in the suburbs of Tehran city (in process)	3 rd Operator (Rightel)
Maintenance of 850 sites in Tehran City (in process)	1 st Operator (MCI)

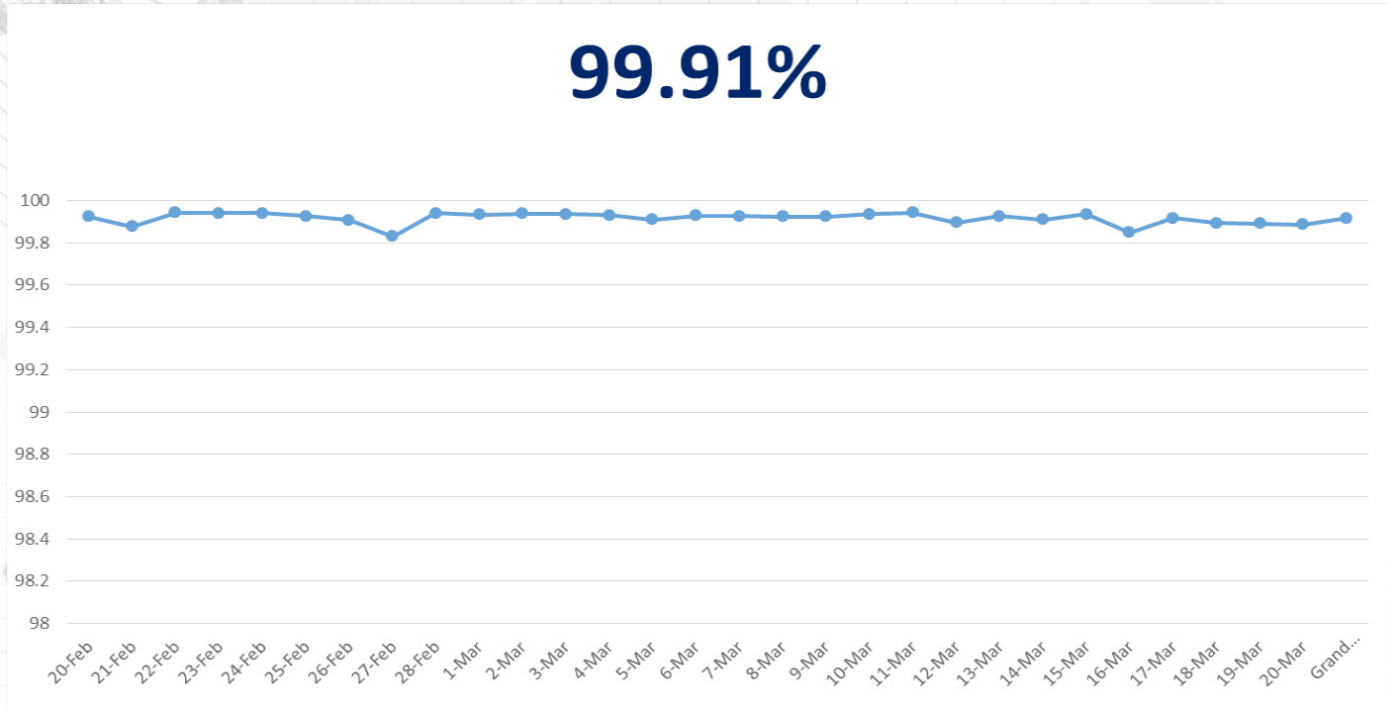
Experiences In Irancell

Here are different type of services which we have done for Irancell in Man-
aged Service project:

- Network Management
- Network Operation & Maintenance
- Network Monitoring
- Network Optimization
- Network Safety
- Management Service Integration
- Vendor Coordination
- Technical Center
- New Projects Maintenance
- General Service Requirement



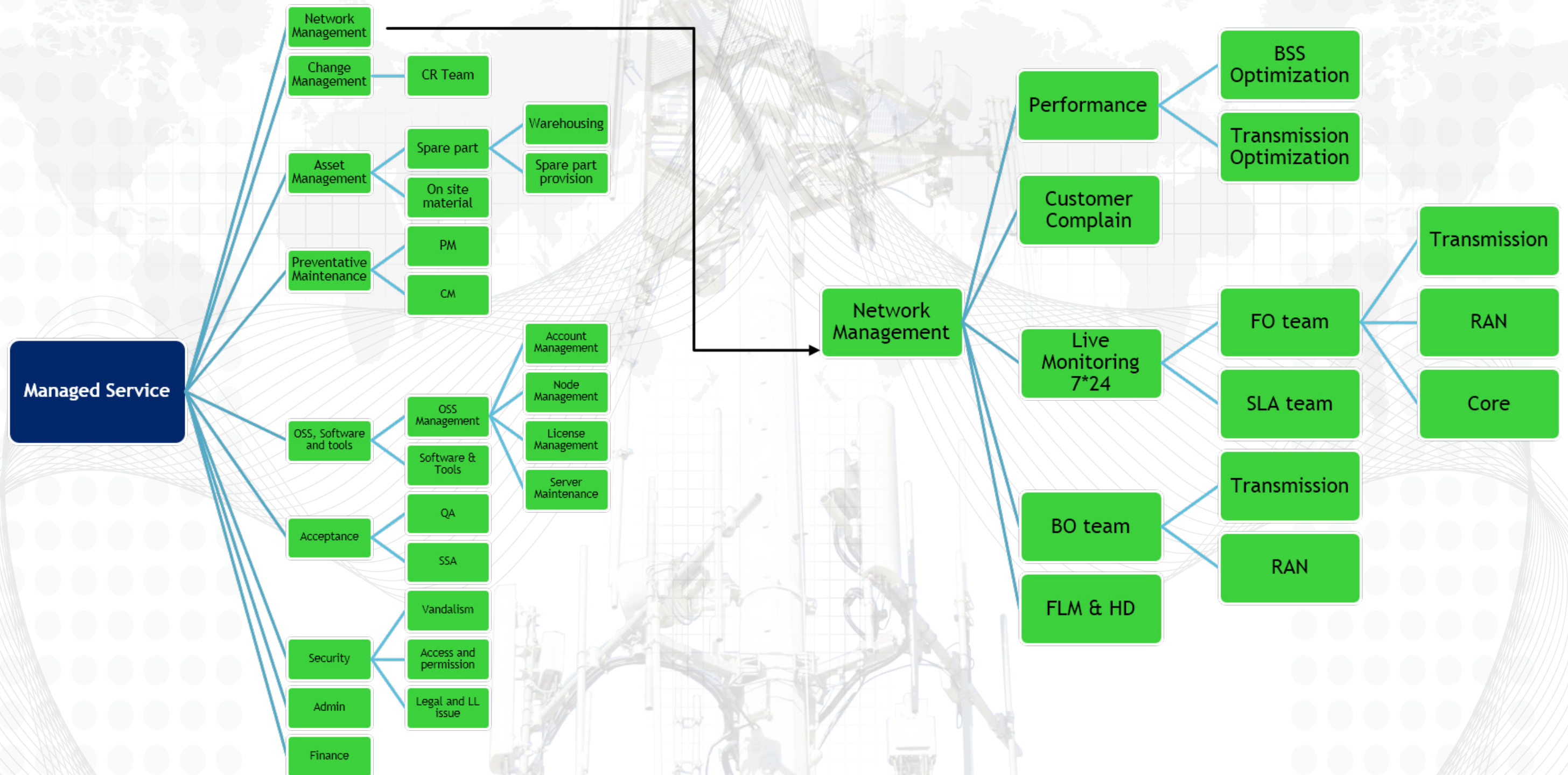
Cell Availability Graph In Rightel



Experiences In Rightel

- Maintenance of 1044 sites in Tehran city (in process)
- Maintenance of 350 sites in the suburbs of Tehran city (in process)

Task Based Organization Chart



MVO & RF optimization & planning



Developed Software

Automatic Reporting Software

A Significant work of MVO includes regular NodeB/eNodeB/RNC/cell site audits on an agreed schedule to provide optimizaion teams with reliable parameters.

ICI has its own in-house web based audit and reporting software that can be developed based on our customer needs. We claim that our system has enough features and its completely localized to satisfy MNO's needs such as:

- All required regular audit from 2G/3G/4G/5G network can be automat-ed based on MNO requirments.
- Data comparison with other reports (TSSR and etc)
- Regular NodeB/eNodeB/RNC/BSC Audit
- Atoll update and correction
- HW/SW Audit
- Feature Audit

Abilities & Services

- RF designing for MNOs
- Optimizing any RF network & plan
- Monitoring & optimizing software Development

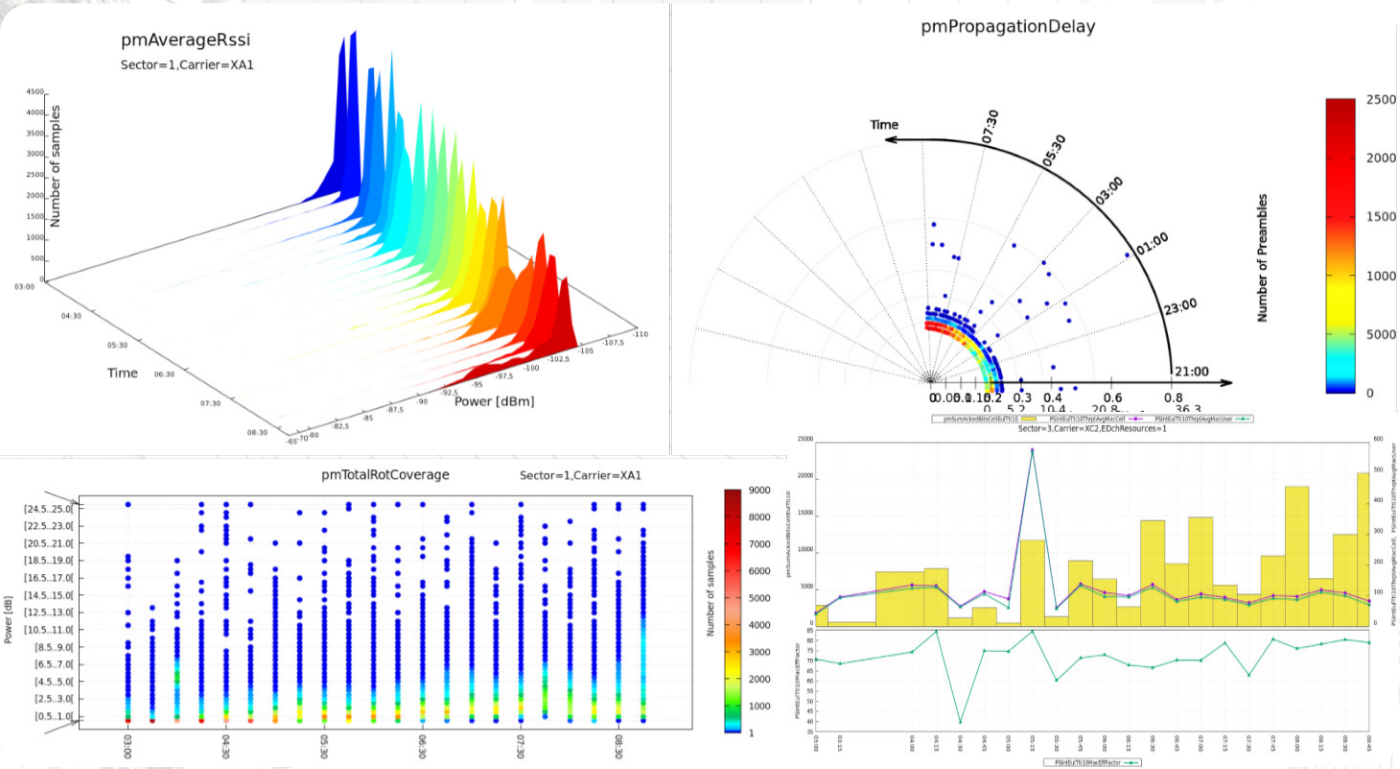
Developed Software

Automatic Reporting Software

##### SpchDrop #####													
AHRNCE1	SpchDrop	0.14	0.15	0.16	0.14	0.16	0.14	0.14	0.13	0.48	0.20	0.19	0.13
AHRNCE2	SpchDrop	0.18	0.17	0.15	0.17	0.17	0.18	0.18	0.17	0.16	0.18	0.14	0.19
AHRNCE3	SpchDrop	0.43	0.37	0.59	0.37	0.49	0.53	0.39	0.40	0.20	0.35	0.32	0.33
AHRNCE4	SpchDrop	0.13	0.12	0.16	0.18	0.14	0.16	0.14	0.19	0.21	0.15	0.23	0.14
AHRNCE5	SpchDrop	0.14	0.20	0.09	0.18	0.20	0.11	0.16	0.15	0.15	0.17	0.14	0.24
AHRNCE6	SpchDrop	0.22	0.22	0.19	0.23	0.30	0.30	0.18	0.21	0.25	0.25	0.19	0.17
AHRNCE7	SpchDrop	0.16	0.14	0.19	0.17	0.27	0.23	0.31	0.29	0.29	0.42	0.18	0.15
YJRNCE1	SpchDrop	0.18	0.41	0.22	0.28	0.23	0.26	0.20	0.20	0.23	0.14	0.23	0.27
##### SpchRabSuc #####													
AHRNCE1	SpchRabSuc	99.98	99.96	99.94	99.94	99.97	99.90	99.96	99.98	99.90	99.92	99.96	99.95
AHRNCE2	SpchRabSuc	99.87	99.92	99.90	99.94	99.93	99.97	99.94	99.97	99.94	99.96	99.95	99.88
AHRNCE3	SpchRabSuc	99.93	99.94	99.94	99.95	99.91	99.85	99.93	99.89	99.93	99.91	99.91	99.95
AHRNCE4	SpchRabSuc	99.96	99.98	99.97	99.95	99.91	99.96	99.92	99.94	99.95	99.96	99.95	99.88
AHRNCE5	SpchRabSuc	99.92	99.96	99.93	99.95	99.89	99.89	99.94	99.94	99.94	99.96	99.94	99.98
AHRNCE6	SpchRabSuc	99.93	99.96	99.91	99.94	99.94	99.96	99.87	99.95	99.95	99.93	99.90	99.95
AHRNCE7	SpchRabSuc	99.90	99.92	99.93	99.96	99.92	99.97	99.93	99.95	99.91	99.85	99.92	99.92
YJRNCE1	SpchRabSuc	99.94	99.91	99.94	99.94	99.97	99.95	99.92	99.99	99.98	99.96	99.97	99.85
##### SpchRrcSucRate #####													
AHRNCE1	SpchRrcSucRate	99.93	99.97	99.94	99.93	99.96	99.92	99.93	99.95	99.92	99.94	99.94	99.93
AHRNCE2	SpchRrcSucRate	99.95	99.91	99.93	99.93	99.94	99.94	99.92	99.92	99.94	99.94	99.94	99.90
AHRNCE3	SpchRrcSucRate	99.90	99.91	99.92	99.94	99.91	99.92	99.93	99.91	99.92	99.92	99.88	99.91
AHRNCE4	SpchRrcSucRate	99.93	99.91	99.92	99.89	99.94	99.94	99.93	99.92	99.91	99.93	99.90	99.94
AHRNCE5	SpchRrcSucRate	99.91	99.81	99.93	99.94	99.98	99.92	99.85	99.93	99.86	99.94	99.90	99.90
AHRNCE6	SpchRrcSucRate	99.87	99.87	99.90	99.89	99.89	99.91	99.93	99.87	99.89	99.91	99.88	99.90
AHRNCE7	SpchRrcSucRate	99.92	99.93	99.92	99.92	99.94	99.92	99.87	99.93	99.97	99.92	99.93	99.93
YJRNCE1	SpchRrcSucRate	99.94	99.90	99.96	99.94	99.91	99.88	99.95	99.90	99.97	99.96	99.94	99.92
##### SHOSuccess #####													

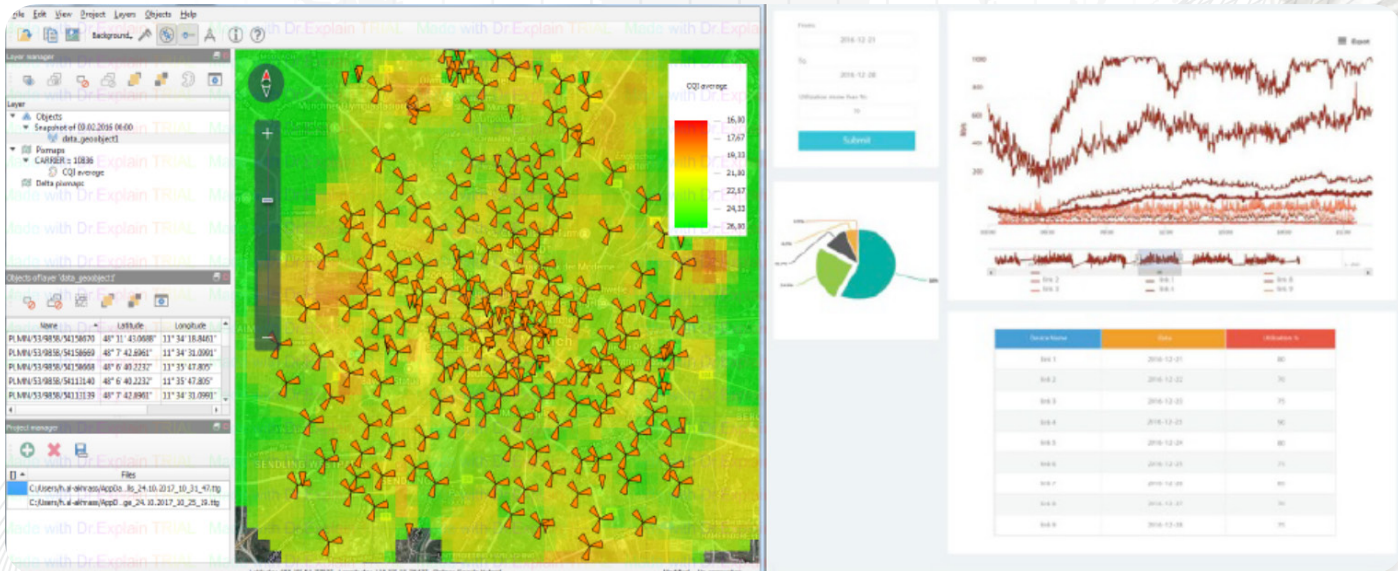
Developed Software

Automatic Reporting Software



Developed Software

Network Monitoring and Optimization Tools



Developed Software

UCMS

UCMS is a local developed software which designed to be replaced by Huawei SDM, It not only covers all features of SDM but also has many new features which makes it easier to use and more secure, It will handle below items:

- Preventative Maintenance Management
- Corrective Maintenance Management
- Access and Permission Management
- QA/SSA Site Handover Management
- Change Request Management
- Trouble Ticket Management
- SLA Management
- FPA Management

VAS & Software

Developed Software

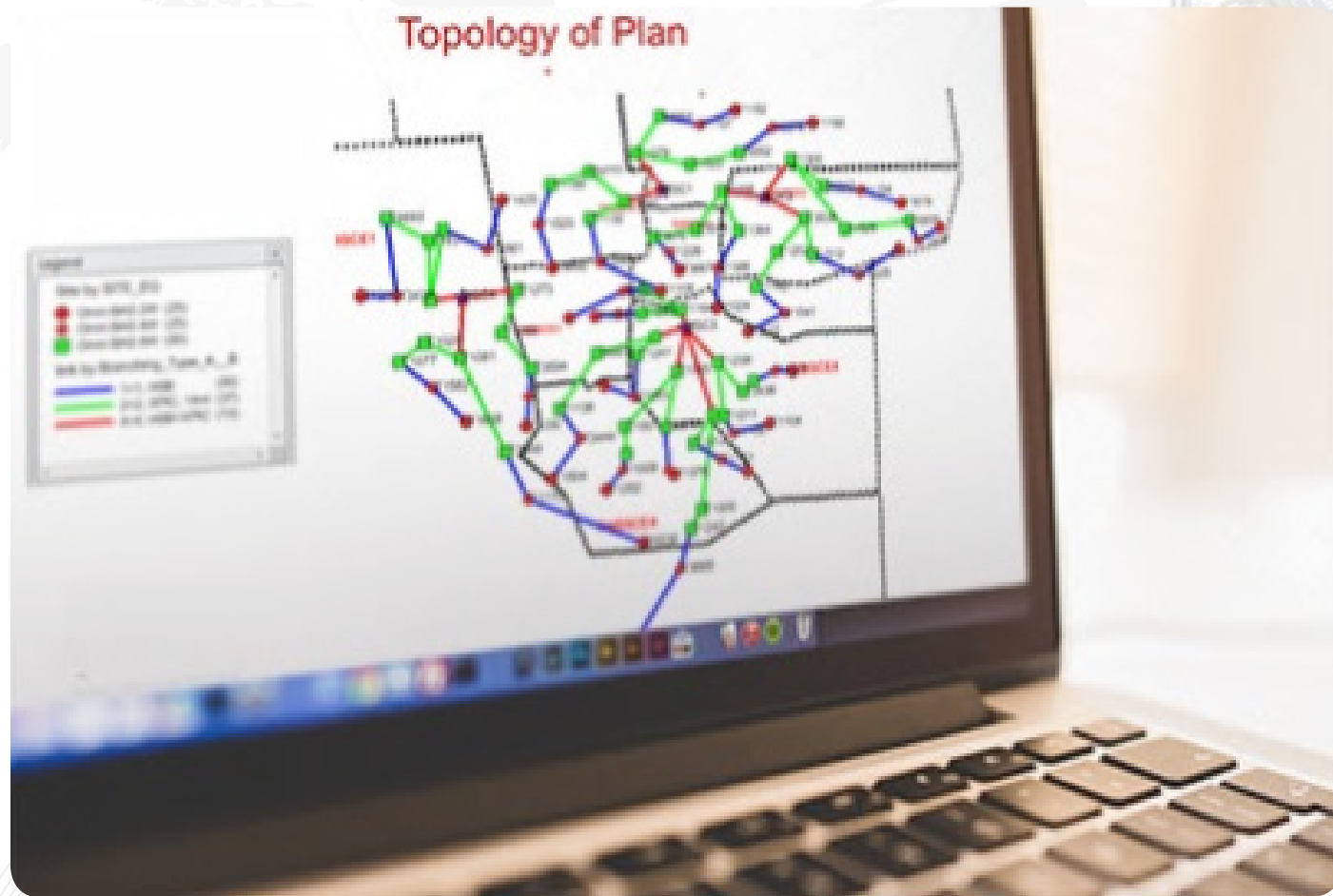
UCMS

Old SDM Features		New Features
Change		License availability
Work Order	Fully Iranian software	Security reports
Trouble Ticket	User friendly	Unauthorized requests blocking
Customer	Session security and Authentication	SDM Info transition safely
SLA	No need for training	Easily updating approval matrix
FPA	Service freeze for specific IP or User	URL Block for wrong address
Access		
Power		
Permission	Multilayer security	



Abilities & Services

- Providing wideband data network services based on MNO’s networks.
- Developing monitoring & VAS softwares
- Video Surveillance As A Service (VSAAS)
- PTT Over Cellular (POC)



Developed Software

- VSAAS software (based on advanced video compression)
- POC software for monitoring and handsets
- Monitoring and SCADA software
- Various location based software
- AVL software



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