



Astramatix

# Corporate Presentation

Astramatix



- ASTRAMATIX is an exciting and emerging company in Engineering Solutions and Services arena. It brings together people with right skills and experience set, who are self motivated dedicated and those who deliver.
- Astramatix enables testing and analyzing of wireless networks to ensure best quality of end user experience. Mobile Network Testing branded solutions are represented within Astramatix services. These offerings enable live (real time) mobile network testing and analyzing including identification of problems in the radio network, with a commercial device to ensure subscribers are able to send and receive telephone calls and use data services and applications. This allows network operators, equipment manufacturers, service providers and regulatory authorities to measure, analyze and optimize network coverage and quality.
- Astramatix is Business partner of **Celfinet** who are the global provider of cellular networks' management solutions headquartered in Lisbon, Portugal and with offices in Porto, Madrid (Spain), Sao Paulo (Brazil) and Newbury (UK). The solutions offering includes Network performance management and optimization, Network support processes optimization, Capacity management, Telecoms training, Mobile network consulting, and CRM for the 2G/3G/ 4G technologies in mobile networks and for fixed transport and access networks.
- Partnered with **Overland Tangberg** for Data Management and Retention Solutions, built on Strong intellectual portfolio of 87 patents and 37 patents pending. Strong Product Portfolio involving Solutions for Active Data to Data At Rest.
- Partnered with **ELTEK Technologies**. The Eltek devices are especially designed to achieve the best quality with the lowest failure rates in the market. The Eltek Eco Design complies to the latest European power saving standards as well as to the highest consumer safety. The Eltek products can be fully customized at your needs. The famous, feature rich Eltek firmware makes the adaptation to your network in an easy plug and playmode.

## Introduction



- Enabling Network Complexity Management
- GLOBAL SOLUTIONS PROVIDER FOR RADIO ACCESS NETWORKS



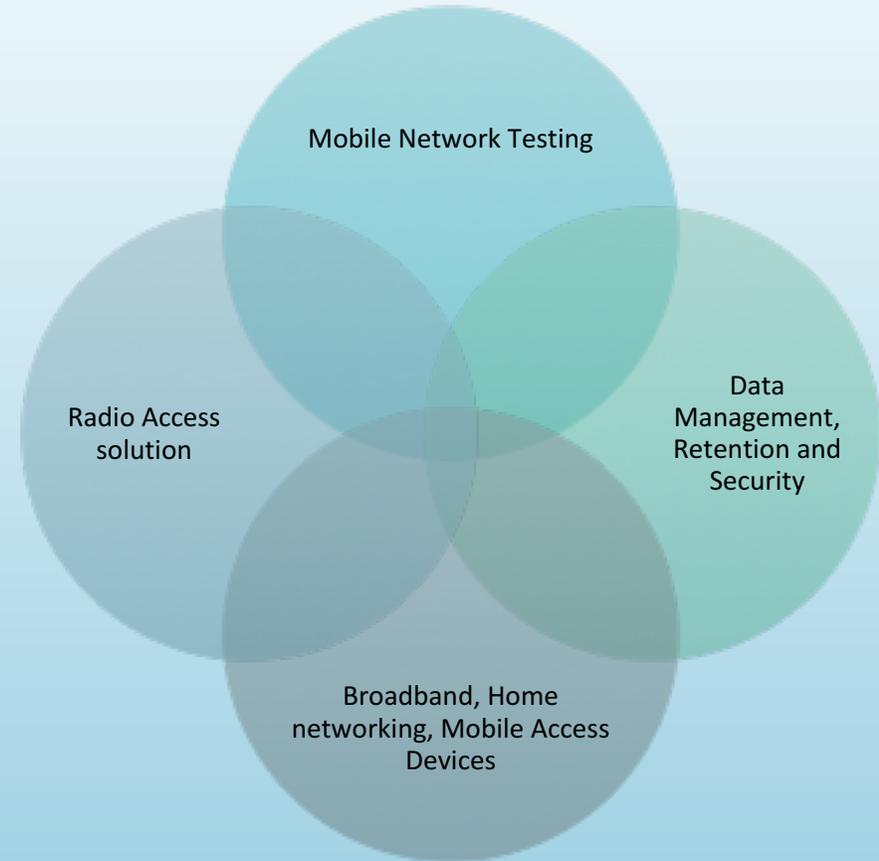
Eltek Technologies Worldwide Leader in Access Devices



- Data Management, Retention and Security

# Partners

- Mobile network Testing products and solution
- Multi Vendor and Technology Radio Access Solution
  - Viscom Manager
  - Vismon Observer
  - Vismon Intelligence
- World Wide Leaders in Access Devices (ELTEK)
  - Broadband
  - Home Networking
  - Voice
  - Mobile
- Data Management , Retention and Security



## Our Products

- Customer Experience Management
- Network Audit Services
- Network Benchmarking Services
- Network Optimization
- Program and Project Management
- System Integration
- Customer support for all products
- Training and Expert Guidance



#### Data Analytics

Astramatix provides unbiased, true metrics on the performance of the network, enabling us to provide fully independent governance services for operators with managed services.



#### Drive Test Solutions

Astramatix consultants have experience on all the top drive test tools to provide optimisation as well as performance auditing and benchmarking services to our client



#### Consulting

Our expertise is based on deep scientific and technical understanding. This is especially clear in the area of mobile networks. Technology connects us - and it doesn't stop at industry boundaries. Our areas of expertise are merging over time...



#### Training

Our training courses are focused on the telecoms industry but cover a wide variety of subjects such as technology, commercial and project management.



#### Network Planning

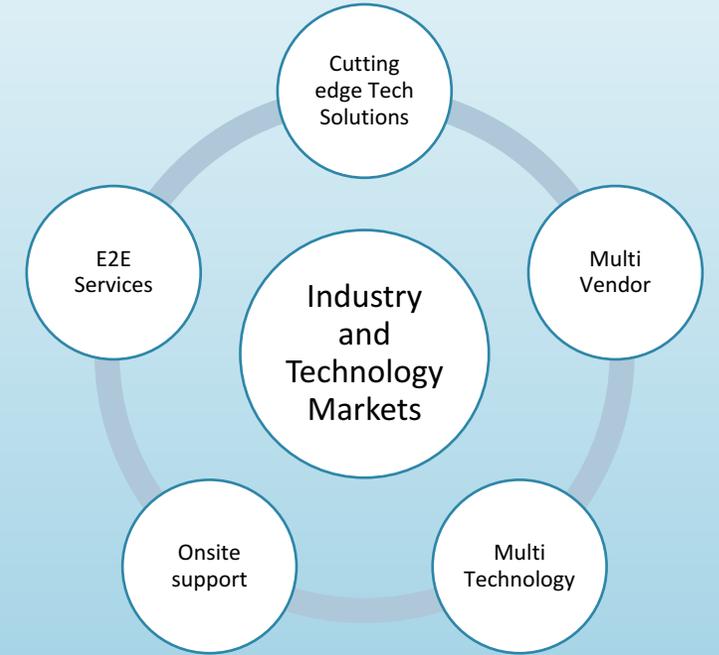
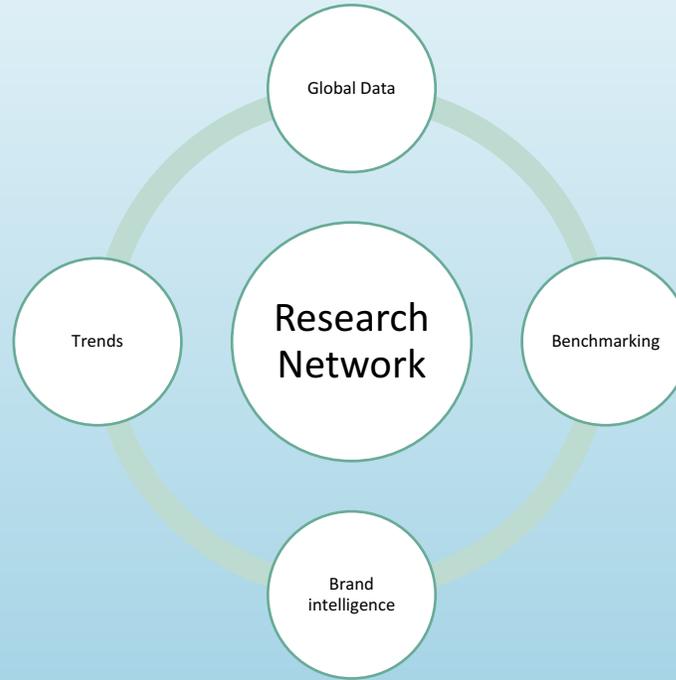
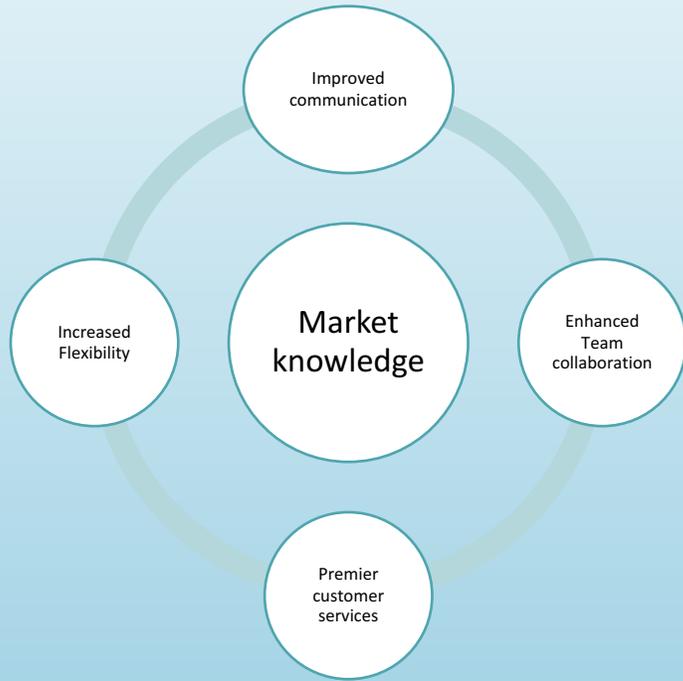
Astramatix can provide a complete solution for outdoor radio and IBS planning using the industry leading tools. This includes multi-technology support for 2G, UMTS and LTE.



#### Operations

Our services are designed to provide flexibility to our customers by using all our expertise, tools and capabilities to provide the best end-user experience and operational efficiency, in the most reliable and cost-effective way.

# Our Services

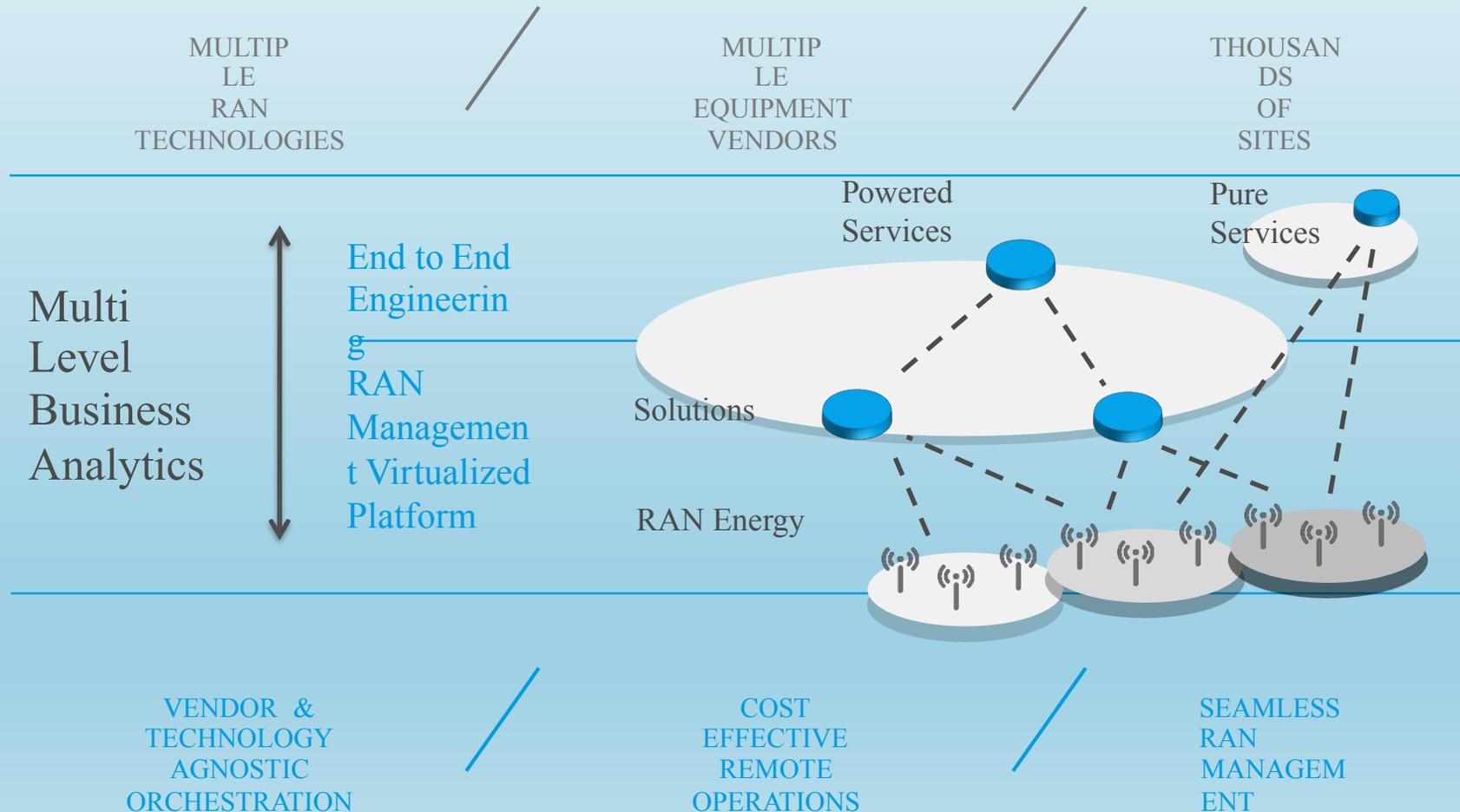


# Our Strengths

# GLOBAL SOLUTIONS PROVIDER FOR RADIO ACCESS NETWORKS

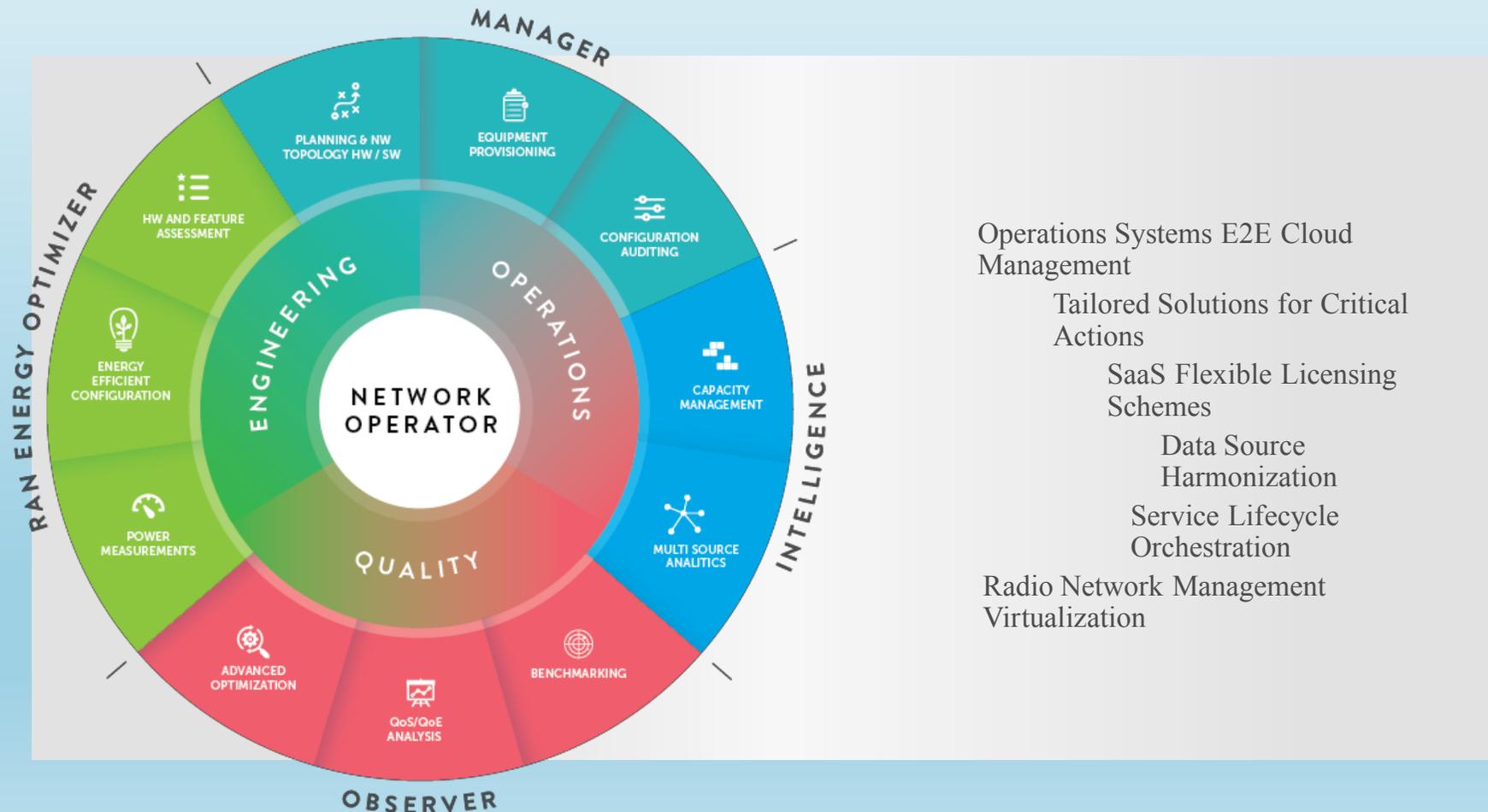
# OVERCOMING AN INCREASINGLY COMPLEX CHALLENGE

## > RAN Multi Environment Management



# VISMON ARCHITECT URE

› **Managing Network Complexity and Achieving Best Network through Cost Effective Approaches**

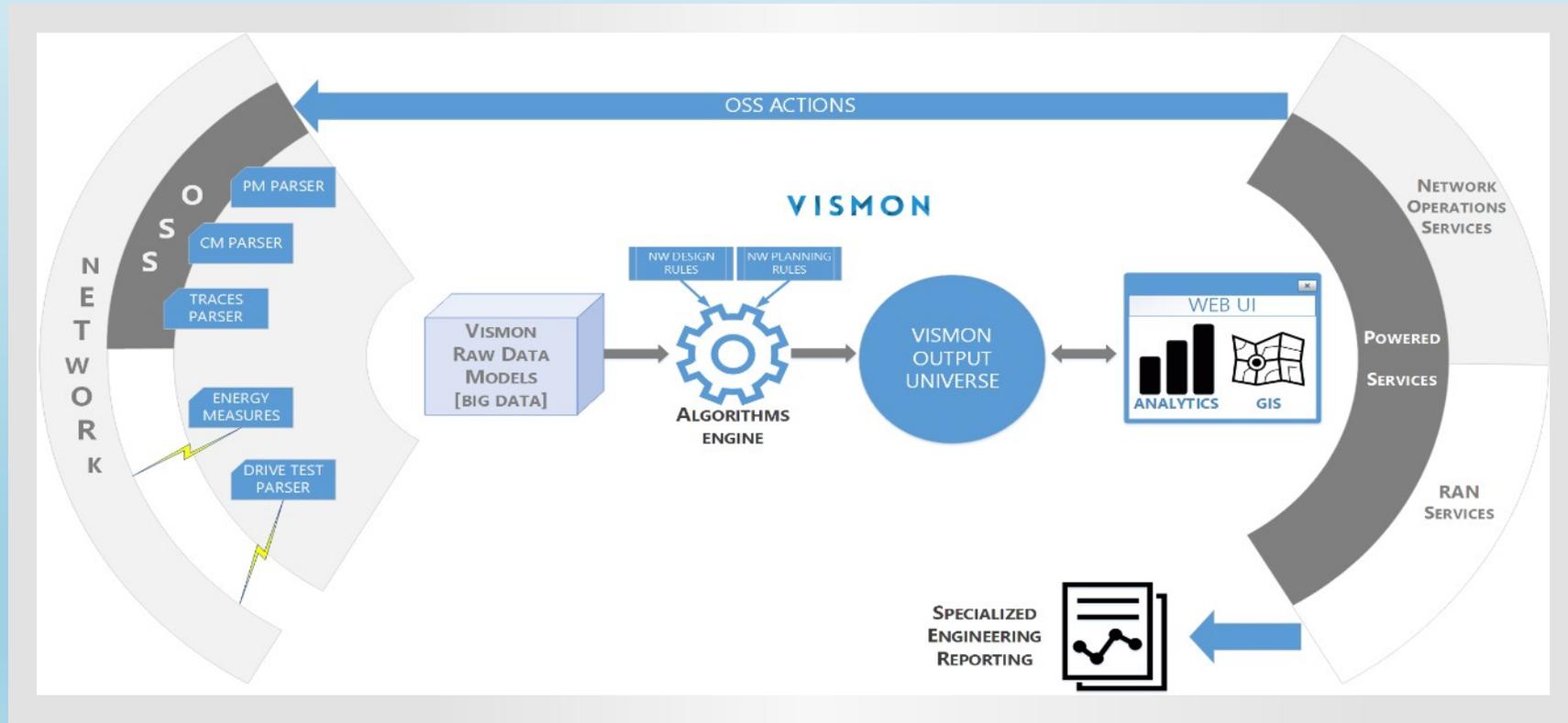


Operations Systems E2E Cloud Management  
Tailored Solutions for Critical Actions  
SaaS Flexible Licensing Schemes  
Data Source Harmonization  
Service Lifecycle Orchestration  
Radio Network Management Virtualization

# PRODUCT LEVERAGING SERVICES

## › Operations System Management Platform

Data Collection, Processing and  
Engineering Activities Enabler

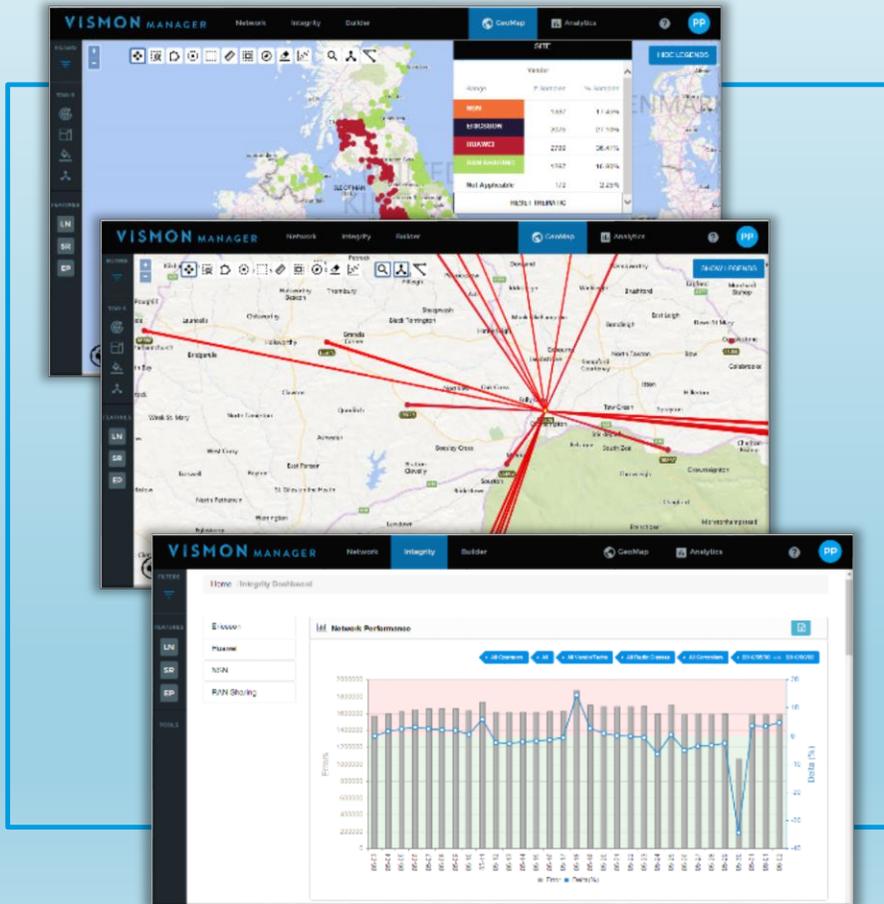


# VISION MANAGER

## › Multi Vendor & Technology Network

### Configuration Solution

Radio Access Networks Control  
and Maximum Service Provisioning



Detailed Topology and HW /SW  
Inventory

Complete Network Element  
Description

New Equipment Roll Out /Upgrade

Configuration Auditing and Correction

RAN Management Virtualization

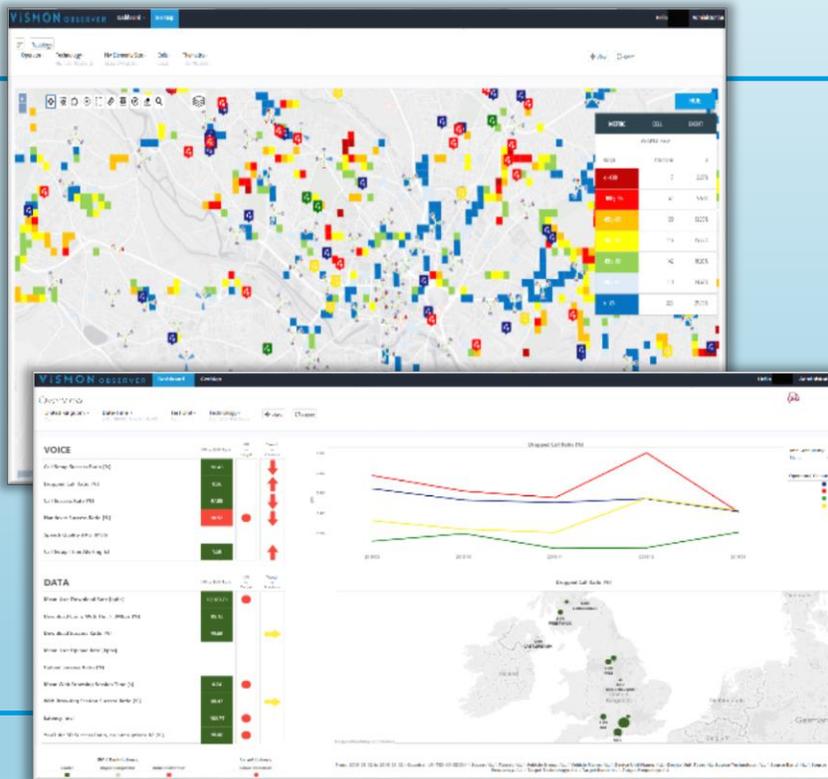
Lower Operational Costs

Fast & Effective Consistency

Assurance Process

# VISMO N OBSERV ER

› Customer Experience &  
Network  
Troubleshooting Solution  
Benchmark and Outperform  
Competition



Coverage and Quality  
Analysis  
Engineering Optimization Algorithms

Scalability and Persistency

Drive Test and Customer Data Management

Network Worst Areas Identification

Quality of Service Monitoring

Competition Benchmarking

Fast & Effective  
Troubleshooting  
Process

# VISMON ENERGY

## › Precisely Measure Power Consumption

Lower Energy Cost Through Efficient  
Layer  
Configurations



### ACCURATE AND SCALABLE

Clock Sync with RAN Network

Measurements every 10 sec, < 1% Error Rate

Multi Vendor and Technology

### PORTABLE AND REMOTELY MANAGEABLE

Remote Monitoring and Access

Portable and Fixed Models, max 2h installation time

Self Recovery



**Self Managed Network Configuration for Po  
Power  
Efficiency**

# Storage and Data Retention

# The Three Major RDX Applications



Storage

- Share data
- Move data
- Distribute data
- Storage extension

Backup

- Automated
- Media-rotation
- Off-site protection
- Windows backup support

Archive

- Data vaulting
- Secure long term archiving
- Compliance archiving with WORM
- Nearline storage

# RDX Product Portfolio



## QUIKSTOR



Internal and External Removable Disk Drives



## QUIKSTATION™



iSCSI Removable Disk Appliances



## HDD, SSD, WORM Media



## Accessories/QuadPAK



# RDX Product Positioning



## RDX QUIKSTOR

**1 piece of media**

**Single drive**

**Capacity: Up to 4TB**

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### **Protects:**

Single workstation or server

### **Typical backup scheme:**

3 Media Rotation



## RDX QUIKSTATION 4

**4 pieces of media**

**4-drive appliance**

**Capacity: Up to 16TB**

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### **Protects:**

Multiple workstations or servers

### **Typical backup scheme:**

Network attached RDX with multiple drives or one large RDX volume



## RDX QUIKSTATION 8

**8 pieces of media**

**8-drive appliance**

**Capacity: Up to 32TB**

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### **Protects:**

Multiple workstations or servers

### **Typical backup scheme:**

Network attached disk array with multiple drives

# Snapserver Product Positioning



## Management

GuardianOS® web management interface for ease of management.



SnapStorage Manager™ to centrally manage multiple SnapServers.



### XSD40 (Desktop)

- 4 drive bays
- Max capacity - 32TB
- For small offices / ROBO (Quiet System)



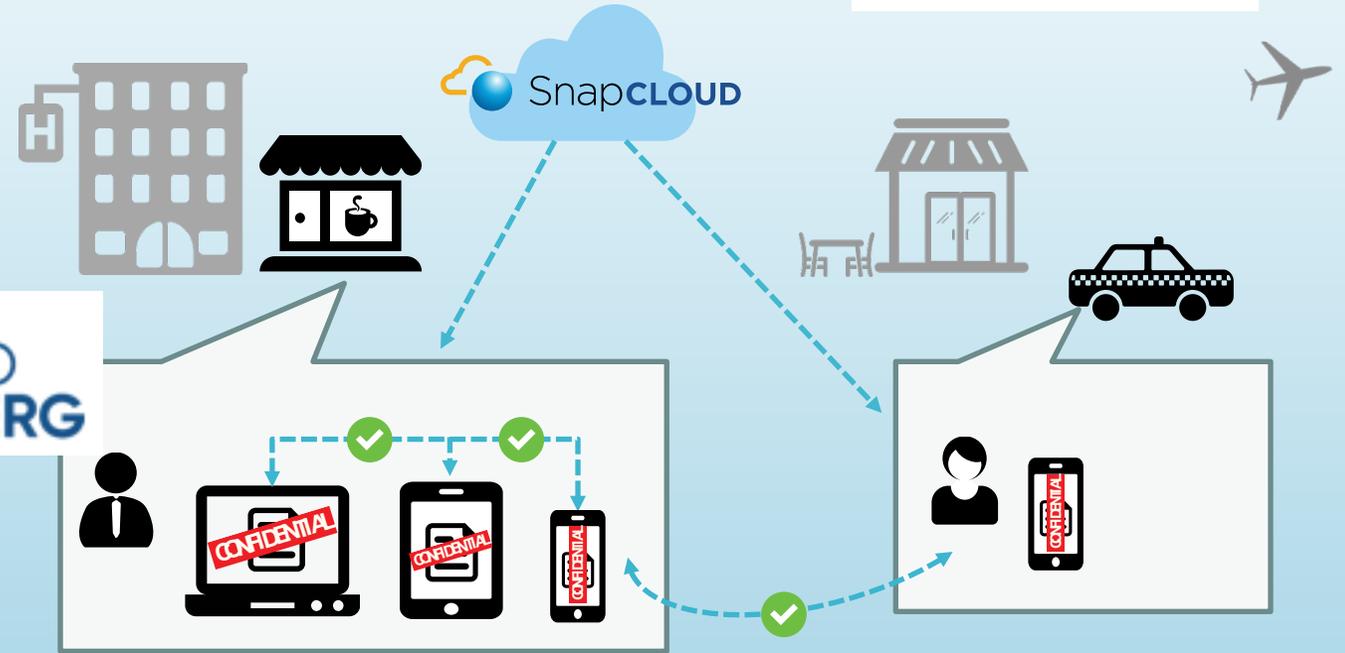
### XSR40 (1U)

- 4 drive bays
- Max capacity - 400TB with 3 Expansion shelves
- For small office environments with moderate data growth



### XSR120 (2U)

- 12 drive bays
- Max capacity - 960TB with 7 Expansion shelves
- For SMBs and large enterprises with significant data growth



Expand storage capacity simply by adding disks to the storage pool



Build a Hybrid Cloud in minutes. Replicate data to and from physical data center; integrate with on-premise active directory and LDAP authentication



Securely access any device, anywhere with business policy enforcement. Sync and share functionality enables data sharing between users and devices.

- Pay for only what you use
- 30 Day Free SnapCLOUD Trial available
- 1 Year Free SnapCloud when buy select NAS solution\*

\* See exact list of part numbers, 16TB limit

# Securely share Data via the Cloud

# Tape Portfolio

## NEO S-Series

- ✓ Autoloader the affordable Tape-Automation
- ✓ T24, 12 or 24 Slots, 1 - 2 LTO Drives
- ✓ T48, 48 Slots, 1 - 4 LTO Drives



## NEO XL-Series

- ✓ Scalable Tape Library for huge or und predictable Data growth
- ✓ Starting with 80 Slots and 1 LTO Drives
- ✓ Scalable to 560 Slots and 42 LTO Drives



# Long Term Storage Keeping 100+ PB data for a long time

- Life Expectancy For archiving BIG data, only disk or tape



Disk: 1- 5 years



Tape: 30+ years

- Reliability Bit Error Rate (BER)



Enterprise SATA  
 $1 \times 10^{15}$



Enterprise SAS  
 $1 \times 10^{16}$



LTO-6  
 $1 \times 10^{17}$



LTO-7,  
T10K  
 $1 \times 10^{19}$

- Performance For archiving BIG data, sequential write



15K RPM SAS  
160 - 233 MB/s



LTO-6  
~160 MB/s



LTO-7  
~300 MB/s



T10K  
252 MB/s

- Scalability



Complicate



Just add tapes

*Long Term Storage – A Comparison*

# Access Devices

# Broadband

Home Networking

Voice

Mobile



**ADSL2+ 1 Port Router**

Eltek A7100-A Series

- 1 LAN Port
- TR-069
- 6 kV surge protection

Model	Annex	Memory	Dual FW	PSU	DSL
A7100-A1	A	2/16MB	NO	6 kV	6 kV
A7100-A2	B	2/16MB	NO	6 kV	6 kV



**ADSL2+ 4 Port 300Mbps 11n Wi-Fi Router**

Eltek A7600-A Series

- 11n 300Mbps 2T2R
- 4 Port Switch
- TR-069
- Dual Firmware image support
- High voltage surge protection 10 kV

Model	Annex	Memory	Dual FW	PSU	DSL
A7600-A3	A	4/16MB	YES	10 kV	10 kV
A7600-A4	B	4/16MB	YES	10 kV	10 kV



**ADSL2+ 300Mbps 11n IAD**

Eltek A7621-A Series

- 11n 300Mbps 2T2R
- 1 Gigabit WAN Port
- 4 Port Switch
- 2 Voice Ports
- 1 USB 2.0 Port
- TR-069
- 6 kV surge protection

Model	Annex	Memory	Dual FW	PSU	DSL
A7621-A1	A	16/64MB	NO	6 kV	6 kV
A7621-A2	B	16/64MB	NO	6 kV	6 kV



## ADSL2+ 1200Mbps 11ac dual-band IAD

Eltek A7921-A Series

- 11ac dual-band 1200Mbps 2T2R/2T2R
- 1 Gigabit WAN Port
- 4 Port Gigabit Switch
- 2 Voice Ports
- 1 USB 2.0 Port
- TR-069
- High voltage surge protection 10 kV

Model	Annex	Memory	Dual FW	PSU	DSL
A7921-A3	A	32/64MB	YES	10 kV	10 kV
A7921-A4	B	32/64MB	YES	10 kV	10 kV



**VDSL2 1 Port Router**  
Eltek V7100-A Series

- 1 LAN Port
- Profile up to 30a
- TR-069
- 6 kV surge protection

Model	Annex	Memory	Dual FW	PSU	DSL
V7100-A1	A	2/16MB	NO	6 kV	6 kV
V7100-A2	B	2/16MB	NO	6 kV	6 kV



**VDSL2 4 Port 300Mbps 11n Wi-Fi Router**  
Eltek V7600-A Series

- 11n 300Mbps 2T2R
- 4 Port Switch
- Profile up to 30a
- Dual Firmware image support
- High voltage surge protection 10 kV
- TR-069

Model	Annex	Memory	Dual FW	PSU	DSL
V7601-A3	A	16/64MB	YES	10 kV	10 kV
V7601-A4	B	16/64MB	YES	10 kV	10 kV



**VDSL2 300Mbps 11n IAD**  
Eltek V7621-A Series

- 11n 300Mbps 2T2R
- 1 Gigabit WAN Port
- 4 Port Switch
- 2 Voice Ports
- Profile up to 30a
- Dual Firmware image support
- 6 kV surge protection
- TR-069

Model	Annex	Memory	Dual FW	PSU	DSL
V7621-A1	A	16/64MB	NO	6 kV	6 kV
V7621-A2	B	16/64MB	NO	6 kV	6 kV



**VDSL2 4 Port 1200Mbps 11ac dual-band Wi-Fi Router**

Eltek V7900-A Series

- 11ac dual-band 1200Mbps 2T2R/2T2R
- 1 Gigabit WAN Port
- 4 Port Gigabit Switch
- Profile up to 30a
- TR-069
- 6 kV surge protection

Model	Annex	Memory	Dual FW	PSU	DSL
V7900-A1	A	8/64MB	NO	6 kV	6 kV
V7900-A2	B	8/64MB	NO	6 kV	6 kV



**VDSL2 4 Port 1200Mbps 11ac dual-band IAD**

Eltek V7921-A Series

- 11ac dual-band 1200Mbps 2T2R/2T2R
- 1 Gigabit WAN Port
- 4 Port Gigabit Switch
- 2 Voice Ports
- 1 USB 2.0 Port
- Profile up to 30a
- TR-069
- 6 kV surge protection

Model	Annex	Memory	Dual FW	PSU	SPU	DSL	SPU
V7921-A1	A	16/64MB	NO	6 kV		6 kV	
V7921-A2	B	16/64MB	NO	6 kV		6 kV	



### ETH/Fiber Gateway 300Mbps 11n

Eltek R3601-W1

- 1 SFP port (single/dual fiber)
- 1 Gigabit WAN Port
- 4 Port Gigabit Switch
- Wi-Fi 11n 300Mbps 2T2R
- 1 USB 2.0 Port
- TR-069
- 6 kV surge protection



### ETH/Fiber 300Mbps 11n IAD

Eltek R36x1-W1 Series

- 1 SFP Port (single/dual fiber)
- 1 Gigabit WAN Port
- 4 Port Gigabit Switch
- Wi-Fi 11n 300Mbps 2T2R
- 1 USB 2.0 Port
- 2 Voice Ports
- TR-069
- 6 kV surge protection

Model	FXS
R3621-W1	2
R3641-W1	4
R3681-W1	8



### ETH/Fiber 1200Mbps 11ac dual-band IAD

Eltek R3921-W1

- 1 SFP Port (single/dual fiber)
- 1 Gigabit WAN Port
- 4 Port Gigabit Switch
- 11ac dual-band 1200Mbps 2T2R/2T2R
- 1 USB 2.0 Port
- 2 Voice Ports
- TR-069
- 6 kV surge protection

Broadband

# Home Networking

Voice

Mobile



## 300Mbps 11n Wi-Fi Gateway

Eltek R7600-A2

- 11n 300Mbps 2T2R
- 1 WAN Port
- 4 Port Switch

- TR-069



## 750Mbps up to 2400 Mbps 11ac dual-band Wi-Fi Gateway

Eltek R7900-A Series

- 11ac dual-band
- 1 Gigabit WAN Port
- 4 Port Gigabit Switch

- TR-069

Model	Wi-Fi 11ac	Memory
R7900-A3	750 Mbps / 2T2R + 1T1R	4/32MB
R7900-A4	1200 Mbps / 2T2R + 2T2R	8/64MB
R7900-A5	2400 Mbps / 2T2R + 3T4R	8/128MB



## 300Mbps 11n Wi-Fi Repeater

Eltek R7605-A3

- 11n 300Mbps 2T2R
- 1 LAN Port
- Repeater or AP Mode
- Wi-Fi Signal LED Indicator
- 6 kV surge protection



## 750Mbps 11ac dual-band Wi-Fi Repeater

Eltek R7905-A1

- 11ac dual-band 750Mbps 2T2R/1T1R
- 1 LAN Port
- Repeater or AP Mode
- Wi-Fi Signal LED Indicator
- 6 kV surge protection

Broadband

Home Networking

**Voice**

Mobile



**SIP Gateway with 1 FXS**

Eltek R7111-L1

- 1 WAN Port
- 1 LAN Port
- 1 Voice Port

- TR-069



**SIP Gateway with 2 FXS**

Eltek R7121-L1

- 1 WAN Port
- 1 LAN Port
- 2 Voice Ports

- TR-069



**SIP Gateway with 1 FXS and 1 FXO**

Eltek R7141-L1

- 1 WAN Port
- 1 LAN Port
- 2 Voice Ports

- TR-069



**ETH/Fiber 300Mbps 11n IAD with up to 8 Voice ports**

Eltek R36x1-W1 Series

- 1 SFP port (single/dual fiber)
- 1 Gigabit WAN Port
- 4 Port Gigabit Switch
- 11n 300Mbps 2T2R
- 1 USB 2.0 Port
- TR-069
- 6 kV surge protection

Model	FXS
R3621-W1	2
R3641-W1	4
R3681-W1	8



**ETH/Fiber 1200Mbps 11ac dual-band IAD**

Eltek R3921-W1

- 1 SFP Port (single/dual fiber)
- 1 Gigabit WAN Port
- 4 Port Gigabit Switch
- 11ac dual-band 1200Mbps 2T2R/2T2R
- 1 USB 2.0 Port
- 2 Voice Ports
- Fiber tray
- TR-069



**Fiber Gateway with 16/24/32 Voice Ports**

Eltek R94xx-W1 Series

- 1 SFP Port (single/dual fiber)
- 4 Ports LAN/WAN
- 16/24/32 Voice Ports
- Console Port

Model	FXS
R9416-W1	16
R9424-W1	24
R9432-W1	32

Broadband

Home Networking

Voice

**Mobile**



### 3G/LTE Mobile Router

Eltek L6600-X Series

- Built-in 2G/3G/4G/LTE
- Several multi-band combinations
- Cat4 up to 150Mbps download

- Up to 7 hours use

Model	4G	3G	2G
L6600-X4	1, 3, 7, 8, 20, 38, 39, 40, 41n	1, 2, 8	2, 3, 8
L6600-X5	1, 3, 5, 8	1, 2, 5, 8	2, 3, 5, 8
L6600-X7	2, 4, 7, 17	2, 5	2, 3, 5, 8
L6600-X8	2, 3, 4, 5, 7, 28, 38	2, 5, 8	2, 3, 5, 8
L6600-X9	4	4	N/A
L6600-Xx	Other band combinations upon request		



### LTE USB Dongle

Eltek L5601-U Series

- Built-in 2G/3G/4G/LTE
- Several multi-band combinations
- Cat4 up to 150Mbps download

Model	4G	3G	2G
L5601-U1	2, 4, 5	2, 5	N/A
L5601-U2	3, 7, 8, 20	1, 2, 4, 5	N/A
L5601-U3	3, 7, 8	1, 2, 5	2, 3, 5
L5601-Ux	Other band combinations upon request		



## LTE Wi-Fi Indoor Router 300Mbps 11n

Eltek L3301-E1

- Built-in 4G
- Several multi-band combinations
- Cat4 up to 150Mbps download
- 2 LAN Ports
- 11n 300Mbps 2T2R
- 1 USB Port
- TR-069

Model	4G	3G	2G
L3301-E1	1, 3, 7, 8, 20	N/A	N/A



## LTE VoIP Wi-Fi Indoor Router 300Mbps 11n

Eltek L3311-E Series

- Built-in 4G
- Several multi-band combinations
- Cat4 up to 150Mbps download
- 2 LAN Ports
- 11n 300Mbps 2T2R
- 1 Voice Port
- 1 USB Port
- TR-069

Model	4G	3G	2G	VoIP
L3311-E3	1, 3, 8	N/A	N/A	SIP
L3311-E4	3, 7, 20	N/A	N/A	SIP
L3311-E6	41, 42	N/A	N/A	SIP
L3311-Ex	Other band combinations upon request			



## 3G/LTE VoIP Wi-Fi Indoor Router 300Mbps 11n

Eltek L3630-W Series

- Built-in 2G/3G/4G
- Several multi-band combinations
- Cat4 up to 150Mbps download
- 4 Port Switch
- 11n 300Mbps 2T2R
- 1 Voice Port
- TR-069

Model	4G	3G	2G	VoIP
L3630-W1	N/A	1, 2, 5	2, 3, 5, 8	SIP/CS
L3630-W2	2, 4	1, 2, 4, 5	N/A	SIP/VoLTE
L3630-W3	1, 3, 7, 20, 38	1, 2, 4, 5	N/A	SIP/VoLTE
L3630-W4	41, 42	N/A	N/A	SIP
L3630-Wx	Other band combinations upon request			



## LTE Wi-Fi Outdoor Router 300Mbps 11n Eltek L3315-E Series

- Built-in 4G Band 41/42
- Cat4 up to 150Mbps download
- 2 LAN Ports
- 11n 300Mbps 2T2R
- 1 Voice Port
- 1 USB Port
- TR-069

Model	4G	3G	2G	VoIP
L3315-E2	42	N/A	N/A	SIP
L3315-E6	41, 42	N/A	N/A	SIP
L3315-Ex	Other band combinations upon request			

- Telco projects are a complex set of processes, that can have a huge impact on a telecom business. This is why service providers need a partner, who will not only deliver high-quality Hardware & software, but will take responsibility for the whole process – from analyzing and defining precise business needs, through the translation of those needs into necessary modifications, up to rolling out the project and providing high level post-sales services.
- Astramatix complements its offer of proprietary, pre-integrated packages with a broad range of Products & services, in order to propose a fully comprehensive portfolio for communication service providers. By taking full responsibility for achieving our customer's business and technological goals in the project, we aim to be a true partner for your business and technology transformations.

## Key Benefits of Product and Services

## United Arab Emirates

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