SMART AUTOMATION SOLUTIONS

Simplifying & accelerating management of your complex network

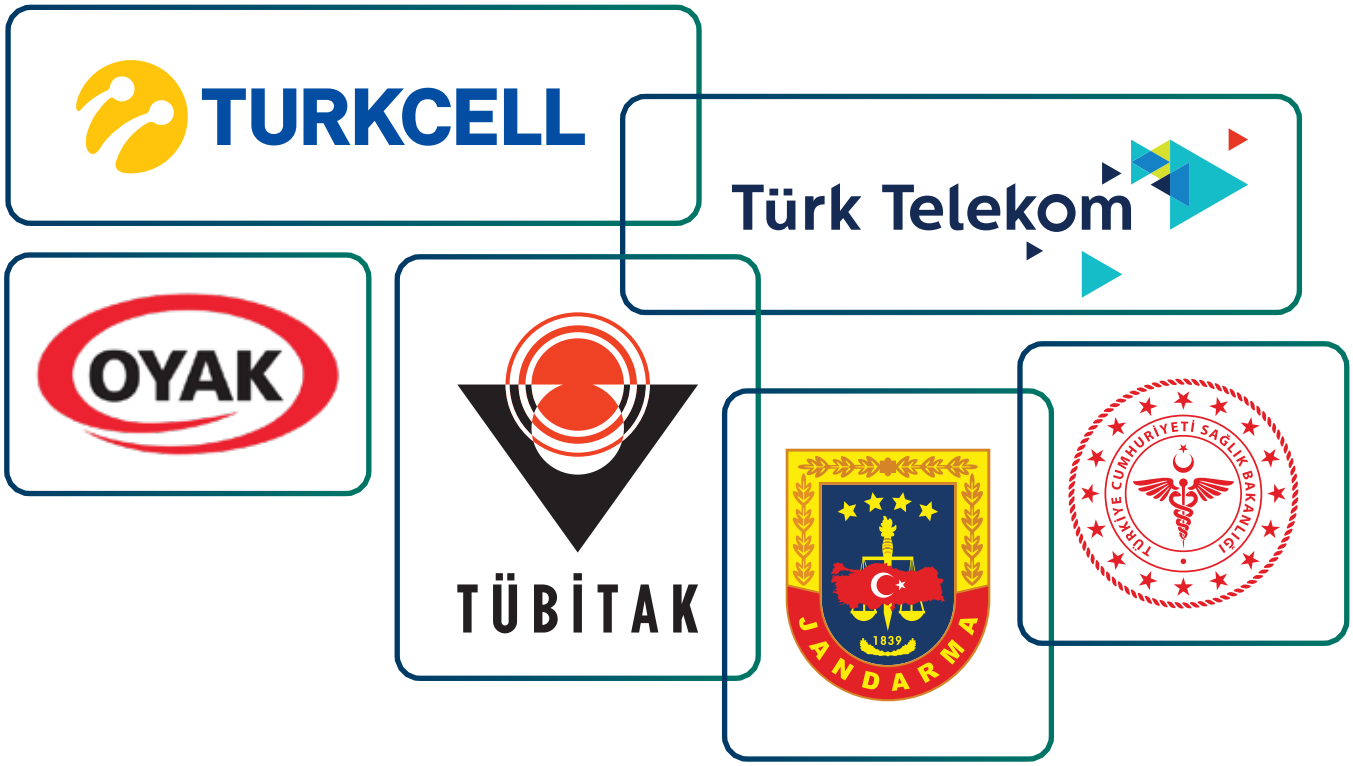
technarts
teknoloji bir sanattır

technarts
technology is an art

Established in 2007 and moved to METU Technopolis in 2009, Nart Informatics is a leading software developer and integrator in Ankara, Turkey which provides tailor made software solutions and services in the field of information technologies.

With extensive experience in industry, Nart Informatics is an innovation oriented, trustworthy company, committed to offer in business areas such as OSS/BSS systems for telco operators, product track & trace systems, health informatics, etc.

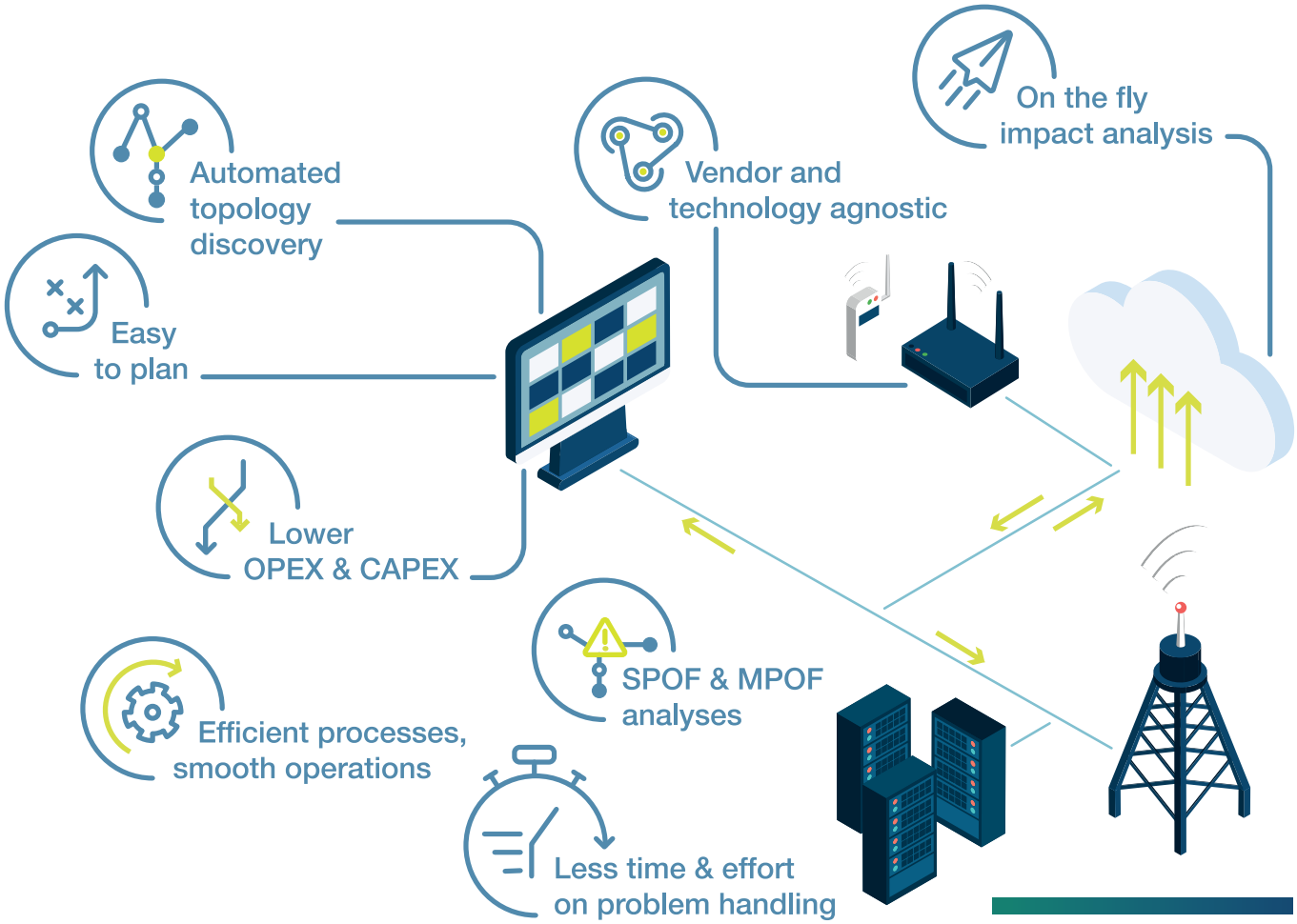
Nart Informatics differs from others with its deep customer relations, resource utilization, working model, strategy, and recruitment process. It has well-qualified 40 employees. Students complete the internship and part time processes before they are hired. Its approach based on adding system and need analysis phases to project management, determining need of customers not just by software development but also by fully analyzing and controlling change management process.



ANALYZES PAST REVEALS NOW PREDICTS FUTURE

Today's cloud enabled, software defined, hybrid networks increase diversity. New technologies and 5G networks raise the bar and many services are getting more critical. In addition; degradations and outages impact customer experience, diminishing visibility makes troubleshooting harder. All the factors highlight the need of an intelligent and integrated solutions beyond network management.

Star Suite is an ultimate telco infrastructure observability, quality, and performance assessment suite for ISPs, CSPs, mobile operators and carriers to offer an accurate data source and network automation solution. It can automatically detect and analyze customer-impacting events, network outages and even degradations in real-time. It delivers end-to-end visibility about what is going on in the network, provides retrospective network insights and has a self-learning mechanism to predict future performance trends.



STAR SUITE MODULES

Automated Topology Discovery

Most organizations are not able to keep the record of their whole physical and logical services accurately and monitor varying vendors and technologies on a single platform. Thus, a piece of puzzle surely becomes missing.

Network is not a static but a living thing. Since all networks are constantly changing, it is essential to monitor networks in real time, all the time. Unlike its rivals, Star Suite gives you the opportunity to observe all changes regardless of the vendor and domain. Star Suite discovers complete topology of your network without getting any user input.

Cutting-edge features

- Interdomain end-to-end topology
- Exploring physical and logical services across dynamic network
- Enriched real-time network data with information such as customer, service, region and so on
- Modelling of additional protection layers across vendors
- Track real-time component status and dependencies on dashboards
- Monitoring multi-vendor and multi-technology with ease
- Accurate data source for vertical services
- Unified and centralized CI structure
- Interactive maps delivering on the fly visibility into network inventory

Fault Management

Degradations and outages impact customers
Since connectivity is the lifeblood of almost everything, understanding and resolving outage reasons play a vital role in ensuring high quality of service expectations, business growth and permanency goals of businesses and consumers.

To meet these expectations Star Suite offers fault management modules for NOC teams to visualize, detect, and resolve customer impacting network issues real-time. It periodically collects events from multiple sources and converts them to quality and outage alarms. A set of advanced correlation and automation mechanisms conduct root cause analysis, so 99.21% of the alarms are eliminated and underlying issues are pinpointed. Engineers are alerted about the critical services, the most problematic faults and potential network degradations. By this way, root causes are served up on a golden plate which teams can resolve problems instantly.

LESS ALARM EFFORT
MORE VISIBILITY EFFICIENCY

270M+
alarms collected,
Eliminated to
2M root causes

14+
years
In operation

99,21%
event elimination
with root cause
analysis

200+
integration points
with systems &
services

Performance Management & KPI Analysis

Star Suite gives a comprehensive performance management tool that has ability to monitor end-to-end network performance, keep track of the status alterations in real-time. It helps operation teams to identify network traffic patterns, predict potential failures and even in the most complex, multi technology environments. Built to process massive amount of data using Big Data, Star Suite receives metrics, combines them with the alarms and calculates KPIs to validate network performance, meet guaranteed service level and quality of service. Star Suite's advanced algorithms automatically detect network anomalies and utilize adaptive thresholds to better monitor KPI trends. Accurate data collection, processing and analyzing KPIs continuously lead to in-dept insights about potential failures and ensures planning for future network expansions.

Process large volume of data

Advanced alerting system

In-depth network visibility

Smart correlation

Customizable KPI extraction

Big data analytics

Impact Analysis

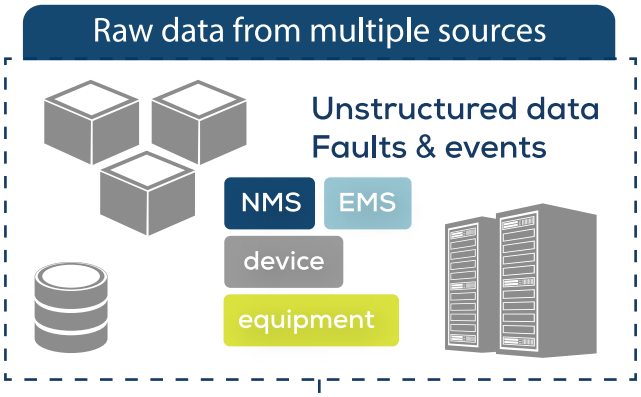
Impact analysis tool simulates outages with continuous single and multi-point of failure analyses and demonstrates outage impacts on the whole network environment. Failure points are applied on the most recent topology as if they are real. The unique algorithm is performed by the topological correlation of simulated alarms with logical & physical services and reports any kind of impact on the actual network. It helps to determine which services, customers, and regions are impacted in detail. Besides, proper time for planned works can be assigned and impacts of the planned works over each other can be observed.

SLA Management

Star has a built-in SLA management system providing better visibility on whether the parties comply with the agreement terms. SLA metrics are computed not only for your customers but also for your maintainers and teams. By this way, you can evaluate QoS and performance of your maintainer, team and entire organization. Outage logs, planned works, tickets, and force majeure situations (earthquake, flood, bureaucratic obstacles) are integrated with Star Suite to supply 100% accurate SLA metric computations. With extensive dashboards and detailed reports, you can better serve your customers, protect your business, and achieve financial predictability and higher profits. Moreover, SLA reports and dashboard can be integrated to 3rd party applications for many purposes.

LLD Planning & Port Reservation

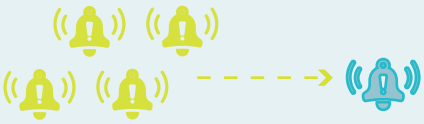
- Actual topology correlated with the protection topology on the sites can be designed without any error with path optimization
- Monitor capacity utilization, access information about port availability and how much bandwidth is occupied on transponder cards
- Ensure port, bandwidth and capacity utilization
- Prevent single point of failure caused by use of wrong transponder cards at first and second levels by multilayer transponder protection
- Reserve ports and prevent duplications during trail planning
- Reduce CAPEX by avoiding excess card installations



with
SNMP
CLI

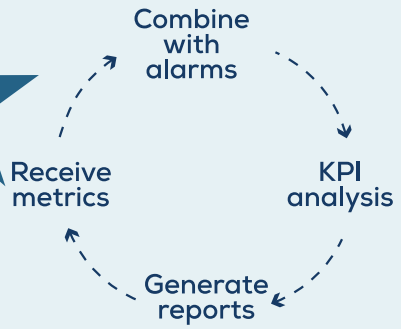
Fault Management

- Filtering, grouping, diagnosing events
- Topological correlation
- Root cause analysis



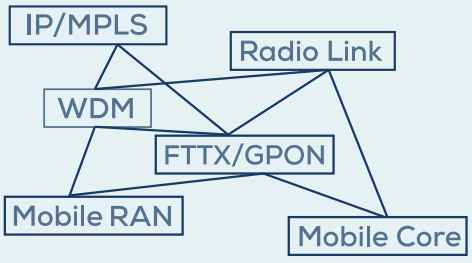
STAR SUITE

Performance/Quality Management

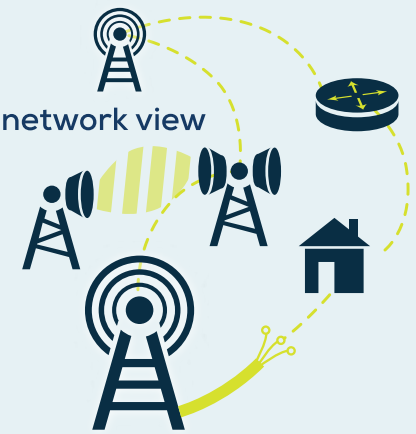


Automated Topology Discovery

Association



E2E network view



COVERED DOMAINS

FIBER (SDH/SONET, WDM/OTN) | Radio Link | GPON, FTTX, BNG, VAE

MPLS, IP, MPLS-TP, Eth, PTN | Mobile CORE | Mobile RAN (2G, 3G, 4G, 5G)

MODULES

ADR
Network Discovery & Reconciliation
Data Providing
Inventory Change & Difference Management
Inventory History Management
Operator Specific Labelling

Network Inventory Management
Service Discovery & Reconciliation
Diverse Services
Hybrid Services
Inventory/Stock, Spare & Asset Management
Workflow Management
Network Planning Management
Customer Management
Capacity Management
Planned Work/Scheduled Jobs Management
Single/Multi Point of Failure
Impact Analysis
Vendor Contract Management
Maintainer Solution Partner Management
Physical Topology
Logical Topology
Interactive Service Topology
GIS
Idle Resource Management
Filtering & Integration

Event Collection
Real-time Alarm Collection
Bulk Alarm Collection
Alarm Synchronization
Raise/Clear Matching
Auto Acknowledgement
Duplicate Event Prevention
Alarm Classification
Alarm History Management
Filtering & Integration

Alarm Handling
Cutting Alarm-Inventory Correlation
Cutting Alarm-Service Correlation
Quality Alarm-Inventory Correlation
Quality Alarm-Service Correlation
Root Cause Analysis
Fault Handling
Real-time Service Impact Management
Real-time Customer Impact Management
Service/Customer Impact History
Filtering & Integration

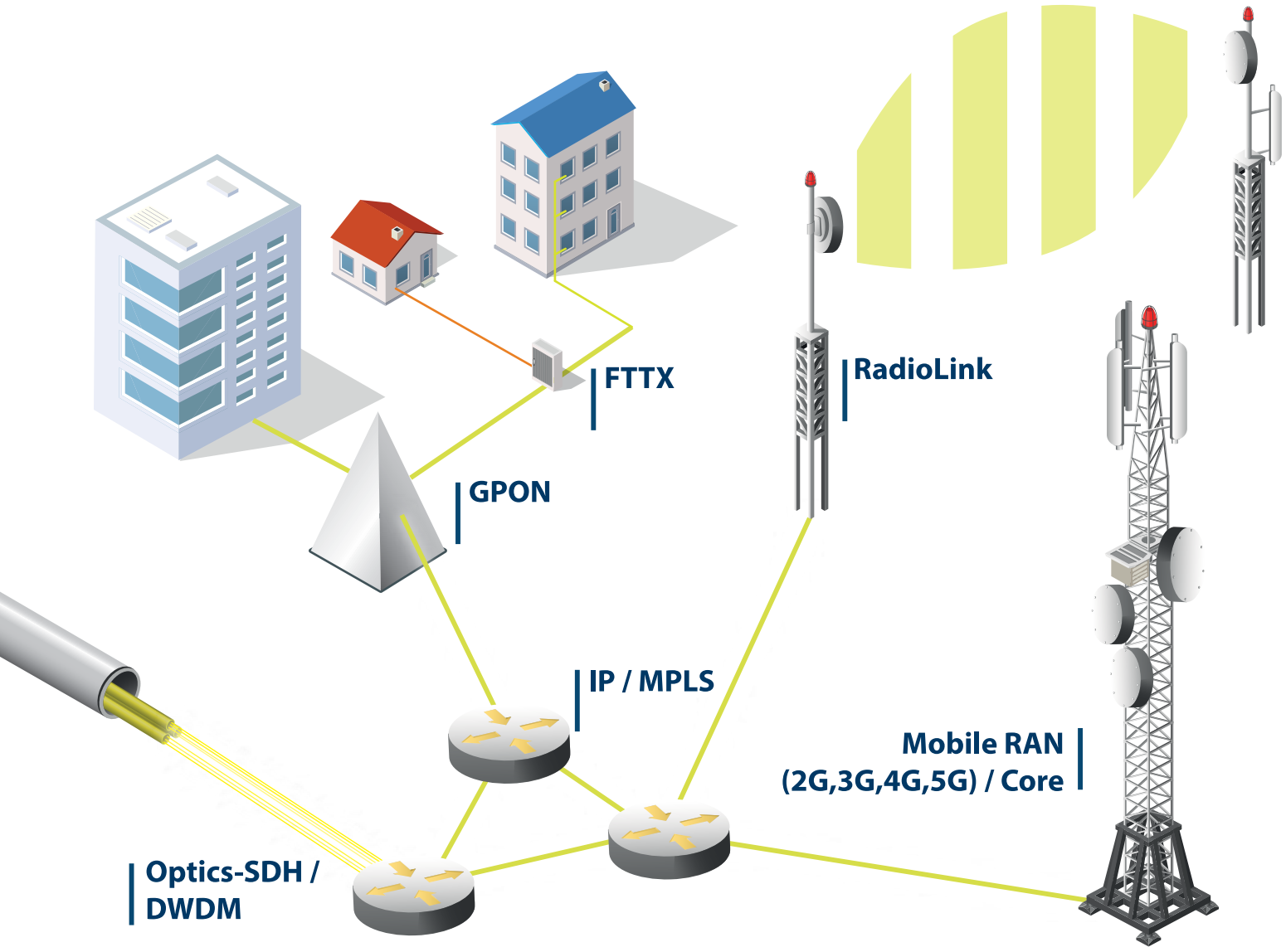
Performance Data Collection
Bulk Performance Data Collection
Performance Data Classification
Performance Data History Management
Filtering & Integration

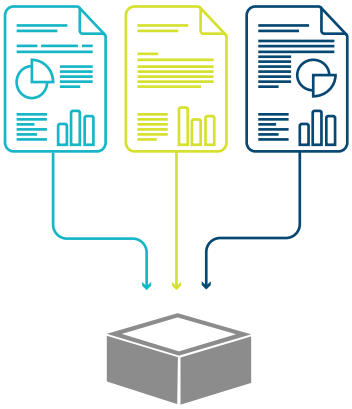
Performance Data Handling
Performance Metrics Management
Performance-Inventory Correlation
Performance-Service Correlation
Performance Treshold Management
KPI Analysis & Reporting
Performance Data History Management

Advanced Modules
Customizable Dashboard
SLA Management
Trouble Ticketing System
Correlation between platforms/Network Overview
E2E Graphical Representation
E2E Single/Multi Point of Failure
E2E Impact Analysis
AI Based Prediction Mechanisms

inventum

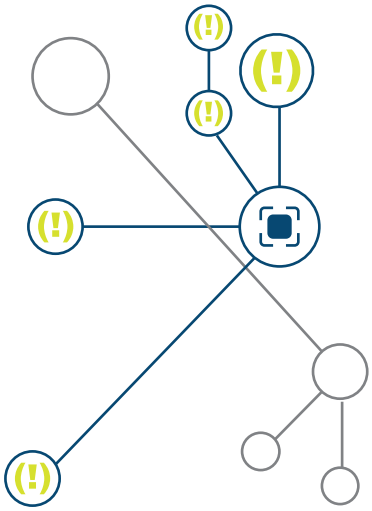
- **Up-to-date inventory is everything**
  Regularly performed network scans give real-time insights for rapidly changing networks
- **Unified inventory data modelling**
  Provides easy-to-use single data structure even for the most diverse networks
- **Single solution for entire network**
  Inventum covers entire network in a domain & vendor agnostic way. 3rd party systems are fed through NBI.
- **Data Enrichment**
  Discovered data is enriched with other data sources. Enrichment is vital for all OSS/BSS systems.





Collect Data From Multiple Sources

Inventum integrates with multiple data sources. It collects data from NMS, EMS, or the equipment itself. SNMP, CLI, XML/Rest APIs, Corba and many other industry standards supported for the collection process. IP ranges are defined or obtained from IPAM solutions such as Numerus and used for discovery. Therefore, only selected IP ranges are scheduled for discovery resulting increased performance.



Impact Analysis

Impact analysis tool simulates outages on the whole network system and determines effects on services, customers, and regions with live continuous SPOF and MPOF analyses to demonstrate the impact of an outage on the whole network environment in detail. Simulation over actual network, what makes network precise and accurate, can be performed through topological correlation of logical & physical services. Analyzing failures gives an opportunity to find out root causes of problems.

Reporting

Customizable reports and dashboards are available to deliver essential information needed in a unified view for a better management and quick troubleshooting. For instance, recent events, IP conflicts, misconfiguration reports, redundancy check reports, topology reports etc. are some of available reports.

numerus

Numerus is a web-based enterprise IP address management solution (IPAM). It provides enterprise level, user friendly IP address management with various integrations. This is critical, as staying on top of IP addresses helps ensure business connectivity and even prevents network conflicts.

Unlike other solutions in the market, Numerus is specially designed for mega network with millions of IP addresses

IP Range & Pool Management

Numerus has ability to manage large units and group IP ranges (public and private address spaces, IPv4 and IPv6). Only authorized users can access already specified ranges to minimize risks and simplify engineers' tasks. IP addresses can be reserved by users and other systems. Reservation from IP range or pools prevents future IP conflicts.

Capacity Management

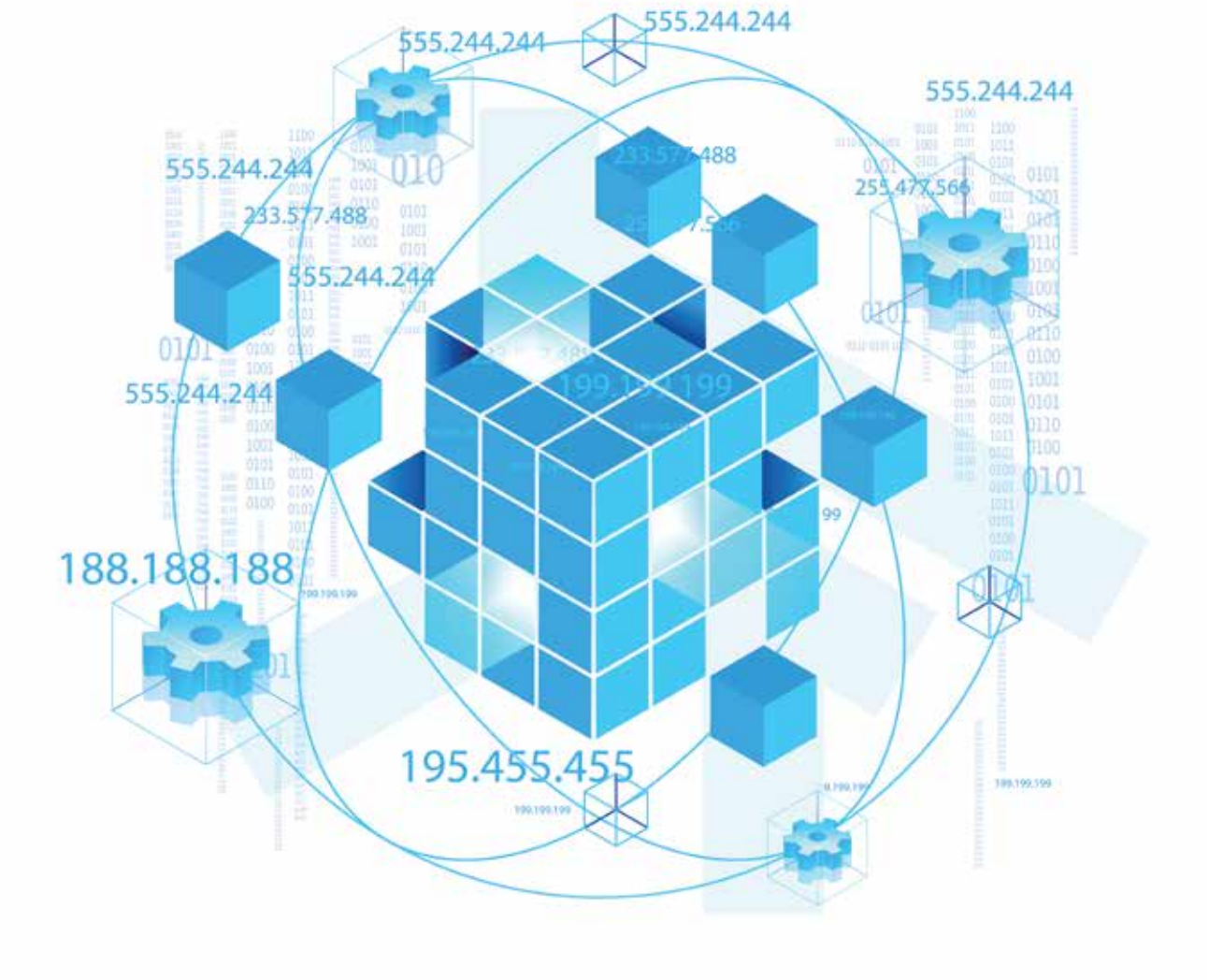
Any capacity exhaustion events like pool depletion, IP overconsumption are automatically detected. Furthermore, these events can not only trigger notifications to the related staff but also take necessary actions such as adding new IP ranges to depleting pool. Besides, network admins can also monitor the capacity of any IP range, IP pool, VLAN. This ensures better planning of IP resources.

RIPE Reporting & Coordination

Numerus reports IP address assignments on your network to RIPE typically in seconds. Regularly sync operation is carried out to resolve inconsistencies with RIPE.

Hierarchical Tree View

By definition, IP addresses are grouped in subnets, and subnets can contain IP addresses and child subnets. The hierarchy between these subnets are shown in a layered manner in GUI. System users can drill down subnets. Additionally, IP pools which are logical layer to group subnets are represented by Numerus.



Domain Authentication and Permission Management

Leverage your existing Microsoft Active Directory and LDAP accounts to allow users to log into the system and authorize CRUD operation permissions. Work independently of other admins, allowing each team to manage their own subnets, address blocks and pools.

VLAN management

Numerus automatically tracks VLAN assignments and finds available VLANs as needed. VLAN management minimizes the risk of human error by avoiding VLAN conflicts and provides a better way to distribute limited number of VLAN to network services.

EVALUATE NETWORK THROUGHPUT, VISUALIZE NETWORK UTILIZATION

TART
Traffic Analysis
& Reporting Tool

DISCOVER- COLLECT-MEASURE-VISUALIZE

Discovery of Network Interfaces

TART discovers your SNMP compliant network equipment inventory regardless of its vast variety. Abstracting out the variations, all vendors, versions, and configurations are at TART's disposal for further processing. This approach empowers you to be aware of your network utilization in the most accurate way.

Collection of Traffic Metrics

TART is specialized on collection of traffic metrics from network agents. Egress & ingress packet counters are read by TART's collector micro processes in parallel, so that all the network traffic can be collected in a consistently time-bound fashion.

Measurement of Network Throughput

Collected metrics will be further processed into bits-per-second traffic usage data by TART's processor micro process. TART is a Big Data solution which collects huge amount of data from the network. From this Big Data store comprehensive network traffic analysis for all customer services performed automatically. It brings in-depth insight into network traffic patterns and trends.

MRTG-like Visualization

TART stores the traffic usage data with very high compression ratios, in a NoSQL data store. Visualization is done in a blink, thanks to TART's optimized data structure tailored for this task. It can represent data graphically on highly intuitive and easy-to-navigate dashboards; therefore you and your customers can better understand the trends, peak usage, and adjust policies for better management. It can also provide detailed monitoring reports and intelligent alerting system to help operation teams staying on the top of traffic behavior and support faster, more effective troubleshooting.

Integration with 3rd Party System

TART provides a rigid basis for 3rd party reporting & analysis tools. With its high integration capability, it acts as an accurate data source for 3rd party systems such as billing, reporting, performance management solutions etc.

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