

**NOVA Cyber Security Technology Research & Development Centre
(NOVA CS-TRDC)**

NOVA

Cyber Security Solutions

by **NETAS**



NETAS

- **48 years experience**, first and largest private telecom and software development company in Turkey
- Develops **ICT software solutions** for more than **200 global operators**
- **The biggest ICT system integrator** company in the region
- **2200+ employees** - 750+ highly qualified R&D engineers (25% with MSc & PhD)
- Turkey's **software export champion**
- **65 scientific articles** (journal papers, conference precedeings) in three years
- **First runner-up of ICT sector** in Turkey's **patent classification @2013**, Over 70 yearly patent applications
- **R&D** 4G Development, IMS, VoIP services, Web applications, HW SW Communications, Cyber Security Products etc.

NETAŞ Telecommunication R&D Departments

Local custom product and solution design for

Intl. ICT Software R&D

The pioneer of software export,
Turkey's largest VoIP R&D
High quality, best class SW R&D for 45+ yrs to multinational companies



ICT R&D

NETAS

Defense R&D

Cyber Security R&D

Mission critical communication SW/HW design for defense organisation



Network/Application Layer Security Products & Services





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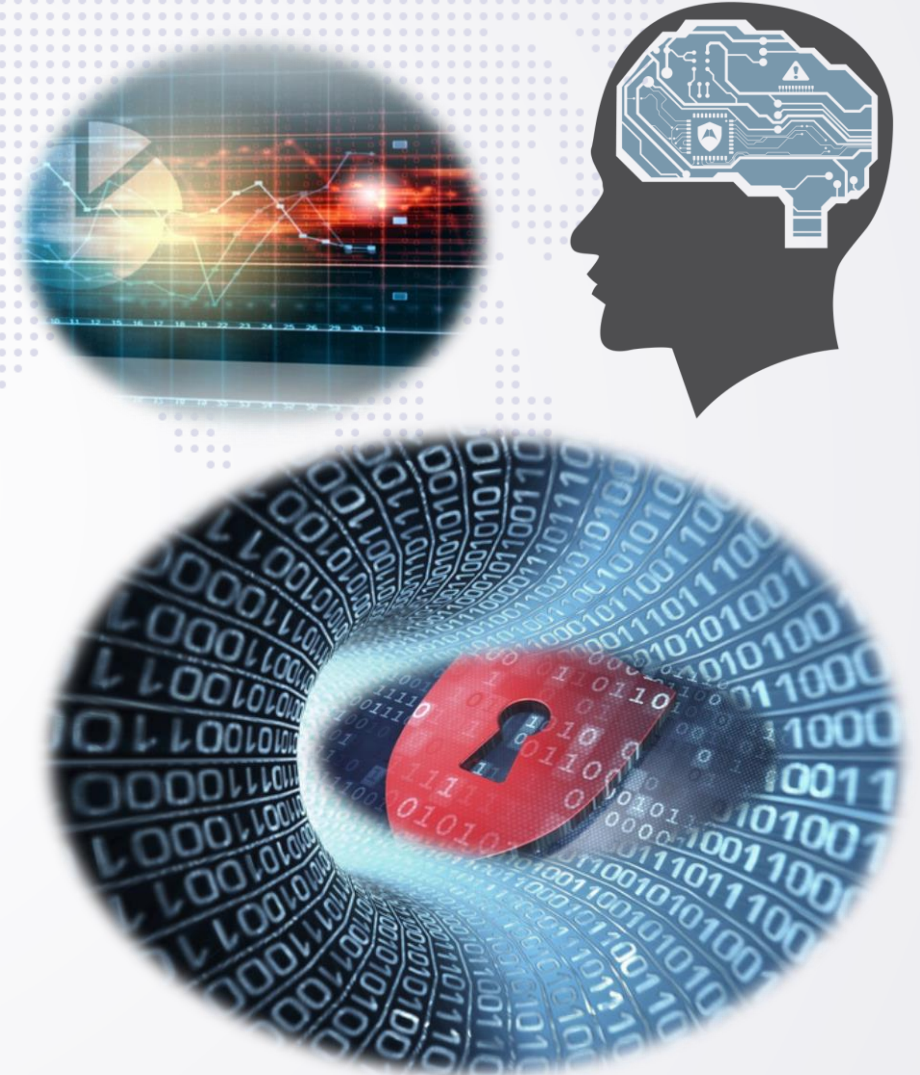
- **Mission:** Foster excellence through collaborative effort to delivers products and services that significantly enhances security and continuity of critical ICT systems that serves society and the businesses.
- **Research Areas**
 - Architecture for Scalable, Higly Available Network Data Processing with Low Latency
 - Big Data Analytics for Network/Applications, Machine Learning and Anomaly Detection, Behaviour Analysis
 - Media Communication Security , End-to-End Security
 - IoT/M2M System Architecture and Security
- **Products and Services**
 - VoIP & Web Application Firewalls
 - VoIP & Web Application Vulnarability Scanning Tools
 - Media Security Platform as secure communication infrastructure
 - Penetration Test for Enterprises (Network, VoIP, Web)



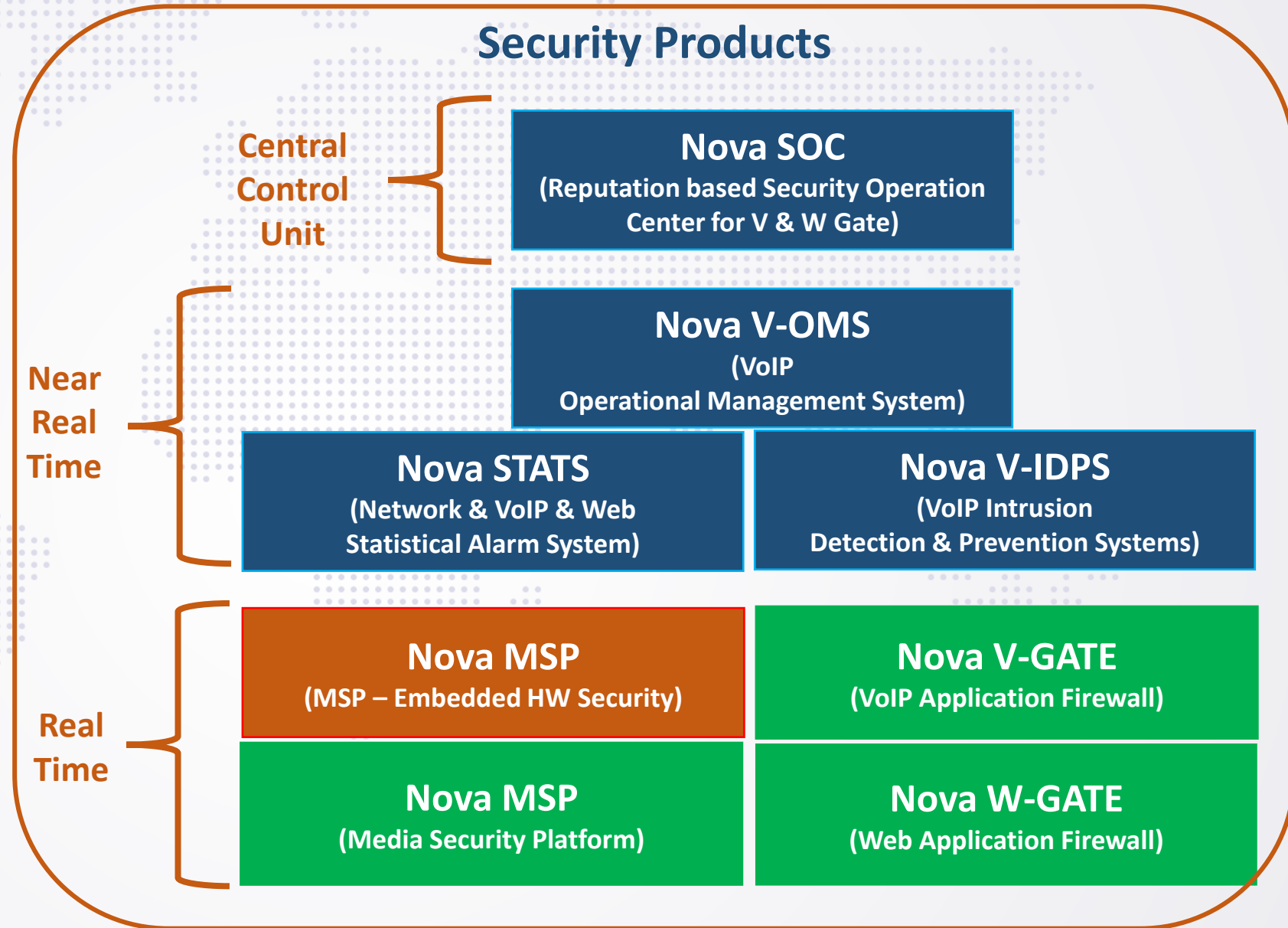
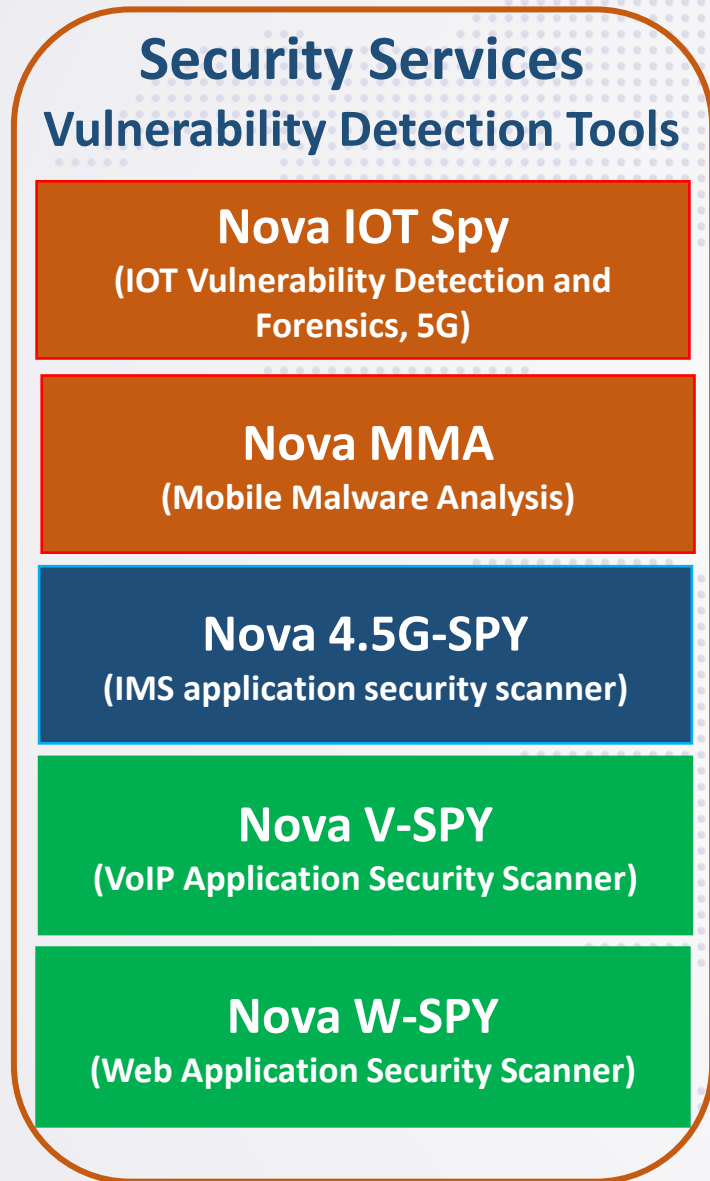
NOVA CS-TRDC - Capabilities

- Formal SDLC Practices
- Platform Development
- Intrusion Detection System Development
- Protocol & Service Development
- Machine Learning and Anomaly Detection
- Behaviour Analysis
- M2M/IoT Architecture with Security Focus
- LAN/WAN Networking
- Virtualization, NFV
- Protocol Compliance Testing
- Automated Testing
- Stress and Volume Testing

NOVA
Cyber Security Solutions by NETAS



NOVA Cyber Security Services and Products (Vertical and Horizontal)



NOVA Cyber Security Developments via 5G

TA8 / TA13 / TA19

Nova SOC
(Security Operation Management)

Nova V-OMS
(Operational Management System)

Nova SPY
(Vulnerability Analysis)

SYSTEM SECURE?

APP. SECURITY

CENTRAL CORE

GET CONNECTED

Nova GATE
(VoIP & Web Application Firewall)

Applications and Business Services
Mobile Broadband, Services, IoT Services, ICT Vertical Industries Services
Application & service programmability, Primitives: catalogues, monitoring, Tools: data analysis, testing and packaging

Nova M2M
(Secure M2M Platform)

Nova STATS
(Network Analytics)

Infrastructure Softwarization and Processes
(Software and service networks provision, Apps-driven network softwarization, control, mgmt. and service planes, Network capability exposure, Optimization of costs and processes)

Multi-Service Mgmt. Functions
(Slice – Service Mapper •Resource-, Domain- and Service Orchestration, Service Information Mgmt., Network Capability Discovery)

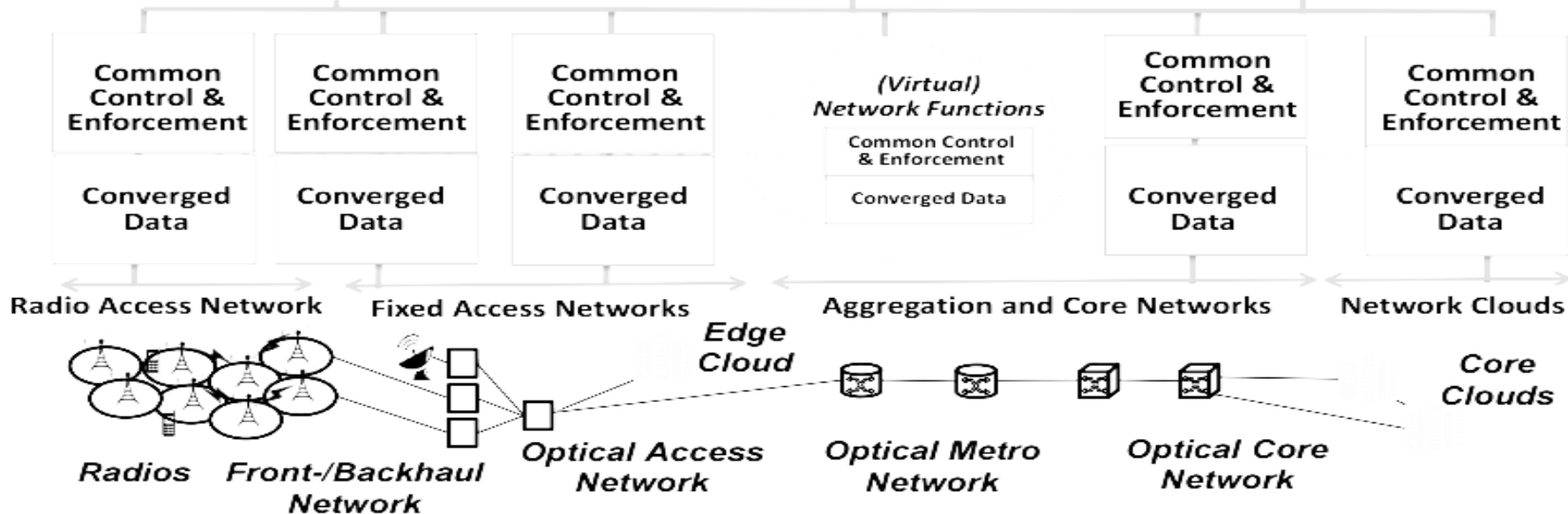
Integrated System Mgmt. and Operations
(E2E /Concatenated Network segments, FCAPS functionality, Network Information Management, Multi domains operations, In-network data/operations processing)

Nova MSP
(Secure Media Communication)

BIG DATA

Infrastructure Control of (Virtual) Network Functions
(Network softwarization, Cloud, Orchestration Mobility control, Mobile edge Computing)

SECURE MEDIA



THANK YOU



Netaş NOVA Cyber Security Department

Research and Product Development

Firewalls,
IDS/IPS,
M2M Security,
Mobile Malware,
Vulnerability Analsis,
Fuzzer Tools,
Monitoring
and
Big Data Security Analytics
about VoIP, Web, Mobile

Platform Development

Common Security Platform,
Media Security Platform
and
oneM2M Supported Secure
Field Infrastructure
Platform

Anomaly Detection and Prevention

Anomaly Detection and
Prevention by using
Machine Learning
especially regarding both
network and application
layer security.

Penetration and Software Verification Test Capabilities

IOT Vulnerability Detection and Forensics, VoIP Application
Security Scanner, Web Application Security Scanner

Deep Packet Inspection

Capturing and Analyzing
Network Netflow, VoIP and
Web traffic based on **Deep
Packet Inspection.**

VoIP, VoWiFi, VoLTE Solutions Security

Nova Product and Projects - VoIP	Competencies
<p>NOVA V-GATE (VoIP Application Firewall) is a modular, transparent, high performance VoIP firewall aimed towards protecting VoIP systems from high costly, damaging attacks by preventing known and unknown application-layer attacks such as toll fraud, premium rate services, Dos/DDoS/TDoS, brute force, fuzzing.</p>	Platform Development Linux (Ubuntu) System Administration Test scripting (Python) Database (PostgreSQL, MongoDB) Virtualization (VMware), Web Services Development C, C++
<p>NOVA V-SPY (VoIP Vulnerability Scanning and Analysis Tool) is a modular, high performance vulnerability scanning framework aimed towards helping penetration testers and administrators that evaluate the security of VoIP applications.</p>	SOAP, J2EE, JSP Protocol & Service Development Telecom standards (SIP, XML, SOAP, and HTTP) Network (TCP/IP, Signaling), Mitigate Fuzzing, DDoS, Flood Attacks Fault Mgmt. (SNMP),
<p>VoIP IDS / IPS is our new project to prevent toll and traffic frauds and also service abuse especially.</p>	Load Balancing, High Availability Big Data Analytics,
<p>VoIP Monitoring is our new project to monitor VoIP systems on both performance and security sides.</p>	Machine Learning and Anomaly Detection End-to-End UC and VoIP Security Testing (DDoS, different attack tests) Performance Testing (Call Generator, Stress Tests)

Nova - Mobile Security

Nova Product and Projects – Mobile	Competencies
<p>NOVA MSP (Media Security Platform) ensures that your devices and operating systems communicate independently and securely. Nova MSP provides secure communication for both client-to-server and client-to-client communication even in unsecure networks and also offers secure media transfer enriched with various security methods and flexible crypto algorithm usage, enabling secure voice and video communication, file and message transfer, and whiteboard usage.</p>	<ul style="list-style-type: none"> Mobile Application Development (Android/iOS) End-to-End Secure Media Secure Voice/Video and Instant Messaging Communication Platforms File Encryption WebRTC Technology Encryption Algorithms: AES128/192/256, Blowfish, TripleDES Smart Card: RSA 2048/4096 – SHA 512 – (CC EAL5+) Web Application Development (Windows/ Android/ Macintosh) Scalable Server Architecture Secure Web Socket TLS Connection
<p>Mobile Security Scanner is our roadmap project which includes vulnerability scanning framework to test mobile applications.</p>	
<p>Mobile Malware Analysis is our roadmap project to detect mobile malware applications and malicious behavioral.</p>	

Nova – Web Security

Our Product and Projects	Competencies
<p>Nova W-GATE (Web Application Firewall) is an application that detects and prevents attacks made to HTTP / HTTPS / HTML5 / SOAP / XML-RPC / Web Service applications.</p>	Multi Process Framework Reverse Proxy SSL/TLS Utilities
<p>Nova W-SPY (Web Vulnerability Scanning and Analysis Tool) is a Web application security scanner tool including Web Crawler, Vulnerability Analyzer, Intercepting Proxy, Web RTC Support, Web Sockets Support, Comprehensive Reporting features.</p>	VLAN and Network Management Module Web Threat Detection Techniques Web Threat Protection Techniques Web Services(XML and SOAP) Load Balancing Policy Management PostgreSQL and MySQL Hibernate (ORM + OGM) AngularJS and Bootstarp Web Crawler Vulnerability Analyzer Intercepting Proxy Web RTC Support C, C++ SOAP, J2EE, JSP

Big Data Security – Statistical Approach

Nova Product and Projects – Big Data	Competencies
<p>Nova STATS (Network, VoIP and Web Behavioral Anomaly Detection Tool) is holistic behavioral anomaly detection tool project by using network flow data, VoIP and Web packets together.</p>	<ul style="list-style-type: none">Network based Behavioral Anomaly DetectionVoIP and Web Packet based Behavioral Anomaly DetectionPacket AnalysisSession AnalysisBig Data CollectionBig Data ManagementBig Data Feature Engineering and AnalysisBig Data SharingNetFlow DataApache Big Data ToolsLoggingLoad BalancingSecurity Policy and Rule Management and OptimizationCompliance Audit
<p>Nova SOC Phase 1 (Border Security Product Log Analyzer) is an orchestration and security operation center tool project to improve performance, security and compliance of security applications such as IP firewall, NGFW, Web and VoIP Application Firewall and IDS/IPS products.</p>	

IOT, M2M Security

Nova Product and Projects – IOT, M2M	Competencies
Nova M2M Security (from local network to M2M Gateway and Core and Service Platform) Sensors communication and IP Connection via M2M Gateway while Core Centers controls sensors and applications via application plattform	oneM2M Standartization by ETSI 6LowPAN Zigbee IPv4, IPv6 Layer protocols
Nova M2M Service Security (Service Orchestration Platform Security) All services' interactions and communications via Core, sensors communication being secure and encryted IOT Forensics	Restfull Architecture design COAP MQTT LWM2M SOA Forensics tools Attack Vectors generation and detction, prevention systems Encryption, trust and data integrity

Nova Penetration Test Services

NOVA PENTEST SERVICES

- UC network,
- VoIP and
- Web applications
- IOT, M2M with Security Services and Consultancy
 - test the applications,
 - infrastructure and
 - devices themselves to ensure they are protected from VoIP, WEB and Unified Communications-related attacks.