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Strategic Partnership with Furukawa Electric LatAm for the IoT & 5G Market
Joining forces with Furukawa Electric LatAm to transform the global IoT and 5G market

Last January, Intracom Telecom signed a strategic partnership with Brazil’s Furukawa Electric LatAm S.A., a global corporation with a diverse portfolio and a member of the Japan-based Furukawa Electric Group.

The partnership builds on the successful history of both companies and is governed by a common customer-centric approach and a shared vision to develop future-proof networks, reduce TCO and design dedicated revenue-generating solutions in the areas of IoT and 5G.

Specifically, it focuses on the development of Fiber-Wireless integrated solutions, with Furukawa Electric providing GPON, WDM and cabling solutions, and Intracom Telecom deploying its Wireless Transport & Access solutions, offering operators a larger tool-box to seamlessly address fixed and mobile transport networks with multi-gigabit transport options. Intracom Telecom’s unmatched R&D capabilities will support any customization needs or even the design of new software solutions. Both Groups are committed to creating profitable synergies mainly in LatAm and Iberia by leveraging their strong international presence.

Mr. Foad Shaikhzadeh, President & CEO of Furukawa Electric LatAm S.A., commented: “Furukawa is very pleased to announce this partnership with Intracom Telecom. Our aim is to better attend our customers, who will have the best solution in One-Stop-Shop. Applications such as IOT, Smart Cities, Industry 4.0, fronthaul and backhaul for 5G, and video streaming, increasingly demand more complex hybrid fiber-radio networks. So we can offer the sum of the virtuosity of each network, either the ultra-broadband of the optical fiber, or the fast deployment and less invasive infrastructure provided by the radio solution.”

Mr. Mohamed Ahmed, President & CEO of Intracom Telecom, stated: “We are truly honoured to partner with Furukawa Electric. By joining our forces we aim to transform the global market enabling life improving services towards the realization of the digital citizen concept. We are looking forward to leveraging our four decades of accumulated experience and our international successful track record in the ICT field in order to develop technological solutions that will shape the future of smart cities. The combination of our innovative technologies and our R&D capabilities, with Furukawa’s FTTx solutions and diversified business, creates a unique offering for all operators preparing for 5G network deployments and plenty of opportunities for businesses in the non-telco area.”

Russia
Virtualization of Wi-Fi services successfully tested

Intracom Telecom, jointly with MGTS, one of the leading wireline telecom operators in the CIS and an MTS Group member, successfully completed the tests of Intracom Telecom’s Virtualized Wi-Fi Services Platform, making MGTS one of the first operators to adopt SDN & NFV technologies for their corporate customers. The pilot deployment was performed at the MGTS testing center, where our platform provided virtualized network functions (VNFs) over the Wi-Fi Access Points used in the MGTS network. MGTS customers can now extend the functionality of their existing on-site Wi-Fi equipment, enjoying such features as fast network services deployment, full management automation and access to historical usage data, all through a specially designed, user-friendly web-interface.

“Virtualization technologies today seem to be the most profitable and promising option both for operators and their subscribers. The solutions that we have tested and plan to deploy next year will allow MGTS corporate customers to scale up their own networks and develop additional Wi-Fi services with minimal investments”, commented Alexander Trokhin, Technical Director, PJSC MGTS.

Spyros Sakellariou, Intracom Telecom SDN/NFV Portfolio Manager, added: “We have been investing in the SDN & NFV domain for the last three years. The solution we have developed is unique in the world and enables MGTS to capitalize on their existing Wi-Fi infrastructure by providing additional services to their customers.”

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Italy
ISO 9001 & ISO 14001 upgrade

Fabbrica Italiana Antenne - Faini Telecommunication Systems, the international telecommunication antenna manufacturer, has recently upgraded both its ISO 9001 Quality Management System and ISO 14001 Environmental Management System to the 2015 edition. All processes & controls have been audited by TÜV Italia, member of the TÜV SÜD Group, which confirmed the compliance of the Management Systems to all requirements of the standards. Faini Telecommunication Systems is committed to providing cutting-edge technology products with the highest level of quality standards and environmental controls.
Supporting ZOSM's public safety network

Last November, Intracom Telecom supplied ZOSM, the monitoring system services department of the Warsaw Metropolitan Police, with its latest generation PTP and PtMP wireless systems, along with the company’s network management system, to address the demanding backhauling needs for Warsaw’s video surveillance network. Specifically, Intracom Telecom, in partnership with Xentia, has been supporting ZOSM to renovate and expand their network gradually since 2015. Intracom Telecom’s WiBAS™-OSDR, OmniBAS™ and StreetNode™ radios, as well as its uni|MS™ Network Management platform, enable ZOSM to create a high-speed, secure and high-performance network that supports over 425 cameras installed in 18 Warsaw districts providing round the clock surveillance of the most threatened neighborhoods. Intracom Telecom’s wireless equipment provides the Warsaw Metropolitan Police with prompt and accurate information about crimes, offenses and other events occurring in areas covered by the surveillance system. The equipment was first installed to cover ZOSM’s surveillance and data traffic needs during the 2016 NATO Summit held in Warsaw.

Jacek Lukomski, Head of ZOSM’s Technical Department noted: “We are pleased to have selected the right partners who address public safety as a top priority and helped us build a network that ensures real-time information on crime events, enhancing the degree of physical security for the citizens of our city. By exploiting Intracom Telecom’s comprehensive SON wireless portfolio and with Xentia’s implementation support, we were able to easily deploy cameras in all required locations.”

Prestigious awards for Intrarom

Recently, Intrarom, Intracom Telecom’s Romanian subsidiary, received two prestigious awards, namely the “Excellency Diploma Award” during the Smart City Industry Awards Gala, for its constant involvement in the development of creative-intelligent communities, and the “Best Industry Manufacturing Award” at the Comunicatii Mobile Awards Gala, in recognition of its long-lasting and sustained investment in the production of high capacity fully outdoor radio systems infrastructure in Romania.

Selecting to provide an innovative surveillance solution

Intracom Telecom signed a contract with KEMEA, the Center for Security Studies in Greece, regarding its participation in EWISA (Early Warning for Increased Situational Awareness), an EU co-funded project, as part of the Security Research Theme of the 7th R&D Framework Program, to provide security research services on land borders. Completion of the project is expected by end of May 2019. A land border surveillance solution was required by EWISA, in line with the concept of a unified integrated solution for EU’s external borders based on Data Fusion from Heterogeneous sensors, including Video Analytics Technologies generating Intelligent Analysis reports. The solution will be implemented, tested and evaluated in four project areas (Greece, Finland, Romania and Spain). Intracom Telecom has undertaken to provide a new solution that will improve the quality and efficiency of services in relation to security issues on topics of common European interest. The project will assess the technological solution and its flexibility to integrate capabilities into the current surveillance infrastructure in order to increase intelligence in video surveillance.

Nikolaos Velentzas, Deputy General Manager of Intracom Telecom’s Services Business Division, noted: “It is a great honor for us to be selected as one of the most capable players in providing a technologically advanced solution to be evaluated by the EU and be implemented in four countries. Leveraging our 40 years of accumulated experience in the telecoms & ICT field and our significant involvement in other EU R&D Framework Programs, we are committed to providing an innovative security and border surveillance solution not only for Europe but for the rest of the world.”

Greece

GEFYRA initiative

Last November, during an event held at the Athens Chamber of Commerce and Industry, Marina Prifti, Recruitment & Succession Planning Manager, and Stamatis Katsaounis, Junior Engineer of the SDN/NFV team, presented Intracom Telecom’s Social Responsibility actions as part of the GEFYRA initiative (Greek Enterprises for Youth Reinforcement Acceleration). The initiative, led by CSR Hellas, aims at building stakeholder partnerships to reduce the skills gap in the Greek labor market, offering high-quality traineeships and first level jobs, contributing to the reduction of youth unemployment and the creation of a new framework for traineeships in Greece.
Delivering optical network QoE in wireless systems beyond 5G

Intracom Telecom participates in TERRANOVA, one of the six H2020 projects awarded by the EC as part of the "Networking Research Beyond 5G" call. The main objective is the validation of disruptive communication concepts beyond current visibility for 5G systems. The project was launched in July 2017 and will last for 30 months. TERRANOVA envisions to extend the QoE and performance reliability of fiber-optic systems to wireless by exploiting frequencies above 275GHz for access and backbone links to provide reliable connectivity of extremely high data rates in the Tbit/s regime and almost 'zero-latency' in networks beyond 5G. To achieve these ambitious objectives, TERRANOVA will utilize breakthrough novel technologies, such as joint design of optical-wireless baseband signal processing, high spectral efficiency RF frontends, THz network information theory framework, THz channel modeling, new waveforms, multiple-access schemes and pencil-beam antenna arrays. Intracom Telecom's role will be to conduct research on beamforming techniques and develop a proof of concept demonstrator.

Developing scalable 5G fronthaul infrastructure

Intracom Telecom participates in BlueSpace, one of the 21 new projects launched in June 2017 as part of phase 2 of the European Commission’s 5G H2020 Public Private Partnership program. BlueSpace targets a disruptive approach for the deployment of scalable, reconfigurable and future-proof fronthaul solutions for 5G communications, offering unrivalled characteristics that include: (a) increased bandwidth provision by naturally enabling and supporting massive MIMO transmissions, exploiting space diversity in the RF domain and supporting RF beam steering in the photonic domain, (b) compact infrastructure, reconfigurable by means of SDN/NFV paradigms and (c) capability of integration with existing access networks such as Passive Optical Networks (PONs). This approach relies on the project's core concept, namely the introduction of Spatial Division Multiplexing (SDM) in the fronthaul and the adaptation of Analog/Digital Radio over Fiber (RoF) schemes to the SDM-capable network. Intracom Telecom will provide its RF expertise by developing the radio parts of the demonstrator.

New H2020 project in the low carbon energy domain

In October 2017, Intracom Telecom co-launched RESOLVD, a 3-year collaborative research and innovation project co-funded by the European Commission under Grant Agreement 773715. The project aims to improve the efficient operation and renewables-hosting capacity of the electricity distribution grids, in a context of highly-distributed generation and storage. The consortium will demonstrate innovative distributed storage systems that enhance the flexibility and controllability of the low voltage grid. It will also deliver hardware and software solutions that improve its observability, with wide area monitoring capabilities, demand/production forecasting and automatic fault detection and isolation. Intracom Telecom’s participation focuses on providing a platform that will integrate the newly developed RESOLVD hardware and software applications with the legacy IT systems of a Distribution System Operator, such as SCADA, MDMS and DMS, and on offering data management, analytics and visualization services.

Embracing ONF’s vision for SDN in wireless transport

Intracom Telecom successfully participated in an important multi-vendor Software-Defined Networking (SDN) Proof of Concept (4.1st PoC) project executed by the Open Networking Foundation (ONF) Wireless Transport group, featuring the integration of an ONAP-based, multi-layer, multi-domain hierarchical SDN architecture.

This PoC achieved the following objectives:
- Verification of distributed (decentralized) cloud-based SDN architecture, which significantly reduced PoC work load, preparation time and cost associated with organization of the PoC (trial), enabling fast development and testing and fast and easy joining of new vendors and third-party application developers.
- Implementation of the “Equipment Model” (in accordance with ONF Core Information Model v1.2) to support equipment and inventory information transfers from the devices to an orchestrator.
- Integration of ONF Information Model TR-532 into ONAP orchestration architecture. Alarms, performance values and inventory information are provided to ONAP components.

As part of the project, Intracom Telecom provided its OmniBAS™-OSDR all-outdoor Software-Defined Radio equipped with a Netconf interface.

As noted by John Tenidis, Marketing Director of Intracom Telecom's wireless solutions portfolio, "By participating in this PoC, Intracom Telecom has proven its strong commitment to engage in innovative development efforts for future-proof wireless transport solutions to serve both existing and SDN-based network architectures, towards the 5G reality."

Hosting interoperability plugfests on the way to a 5G workshop

Preparing for their upcoming large scale public workshop in London on March 7 titled “Advanced Spectrum Management in 5G+ Networks”, the partners of the H2020 funded SPEED-5G project successfully completed two interoperability plugfests hosted by Intracom Telecom in December 2017 and January 2018, respectively. The partners showcased key components of the project’s Extended Dynamic Spectrum Access (eDSA) framework among 5G small cells in a topology including Intracom Telecom’s OSDR PtMP wireless backhaul system. Technologies such as Distributed and Centralized Radio Resource Management (dRRM, cRRM) and the newly developed MAC proved fully interoperable with novel 5G-enabling backhaul technologies that dramatically increase data rates while decreasing per hop latency.
HOME & BUSINESS FWA @ 5G SPEEDS

UltraLink™-BX70

The UltraLink™-BX70 ultra-compact all-outdoor TDD Ethernet E-Band radio for Enterprise Connectivity offers more than 1 Gbit/s capacity, suiting applications such as last-mile B2B connectivity, FTTx extension services, delivery of broadband service to multi-dwelling units, connectivity for government and public service buildings, utilities, industrial complexes, building interconnection, security camera and Wi-Fi access point backhaul.

WiBAS™-Connect

Operating at 10.5 / 26 / 28 GHz bands for broadband fixed wireless network deployments, the compact and lightweight MW radio, WiBAS™-Connect, delivers state-of-the-art IP connectivity in zero-footprint installations and at service locations and offers market-leading density per PtMP sector, advanced networking features and low power consumption. WiBAS™-Connect is the ideal radio for deployments requiring low CapEx access.
South Africa | Cape Town

AfricaCom

Last November, AfricaCom, Africa’s largest technology, telecoms and media event, celebrated its 20th anniversary with a record number of 13,000 attendees and more than 100 exhibitors, including Intracom Telecom, which showcased its wireless solutions. At its stand, company experts had the chance to discuss with visitors how to:

» Accelerate the delivery of 5G Internet speeds with quick and easy installation utilizing our MW PMP radios for homes and SMEs, WiBAS™-OSDR and WiBAS™-Connect;

» Outperform the competition with our Millimeter-Wave ultra-high capacity radios to address backhaul, fronthaul and enterprise access, (StreetNode™ V60-PTP, UltraLink™-FX80, UltraLink™-GX80, UltraLink™-BX70);

» Innovate through our StreetNode™ MW PMP / PTP radio for residential communities and business parks;

» Improve the quality of their network with our OmniBAS™ MW PTP radio offering bandwidth optimization, carrier-class service delivery and highest-possible availability;

» Supervise and manage telecom networks and energy sites by leveraging our uniMS™ unified management suite.

The 21st AfricaCom will take place on November 13-15.

UAE | Dubai

GITEX

More than 140,000 visitors attended the 37th GITEX Technology Week, the leading technology event in the MENA region, held at the Dubai World Trade Center and offering over 4,000 exhibitors from 97 countries the opportunity to present their technology and latest innovations.

Intracom Middle East, the Dubai-based subsidiary of Intracom Telecom, exhibited the Group’s Smart City solutions, including smart lighting, smart parking, waste management, and sound and traffic monitoring. These solutions are smoothly and tightly integrated in the company’s Unified IoT Orchestration & Monetization platform, which provides a 360°-view of the city’s smart services, minimizes OpEx, improves the quality of residential life and generates new revenue streams for the city. The company also presented its latest smart connected home and connected car additions.

Intracom Telecom showcased a broad suite of software solutions designed to address the areas of customer experience management, services monetization and operational excellence. Core offerings included the company’s real-time Big Data Analytics platform specifically designed for the telecom sector, along with several use cases implemented to enhance the customer network experience. The company’s unique Virtualized Wi-Fi Services platform demonstrated how service providers, public sector organizations and private enterprises can work together and share their Access Points, securely creating new network services and enabling new business models and synergies.

For operators preparing for 5G, the company showcased its ultra-high capacity E-Band radio, UltraLink™-GX80. Company demonstrations also included the Point-to-Multipoint solution, WiBAS™-Connect, that addresses the residential Fixed Wireless Access market delivering up to Gigabit capacities, the Gigabit-To-The-Home solution, StreetNode™ V60-PTP, that operates at the V-band, and the ease of installation of high-capacity mmWave radios, enabling ISPs to expand their fiber access network, and the UltraLink™-BX70, an innovative E-Band radio that meets the Access and Enterprise connectivity market segment needs.

During the event, visitors were briefed on the company’s Smart Metering & Energy Management solution for automated data reading and processing of electricity, gas and heat, which may also be enhanced with energy portals and/or smartphone applications, as well as a complete Revenue Management, Customer Management & Energy Analytics stack, leveraging the company’s strong heritage in the O/BSS field.

South Africa | Cape Town

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Greece | Athens

InfoCom World Conference

Intracom Telecom was the Silver Sponsor of the InfoCom World Conference held last October in Athens. Dr. Charalampous Papanastasiou, Intracom Telecom Product Line Marketing Manager, Wireless Network Systems, delivered a presentation titled “Wireless Fiber for Rural Broadband Extension” during which he discussed the challenges and needs for next-generation, high-capacity and 5G-speed networks. Moreover, he described how the company’s wireless solutions at 28GHz are effectively used in Italy to deliver superfast broadband services in rural areas.
Romania » Bucharest

**ACER Convention**

Intrarom participated in the 5th edition of the Communication Convention organized by ACER (Romanian Association for Electronic Communications) with Business Development Manager Calin Muntean presenting Intracom Telecom's OTT / IPTV solution before an audience of leading content operators and key political representatives. The presentation provided a thorough market analysis, including media spending, global pay TV versus SVOD, pay TV to SVOD churn, TV services usage in Europe, SVOD subscriber forecasts, and TV and media attitudes in Romania, as well as a full account of our video, telephony and data offerings and services.

Romania » Sibiu

**Electrica Smart Grid event**

During this year's Electrica Smart Grid event, Kostas Tsirbas, Smart Meters Director at Intracom Telecom, made a presentation entitled “Delivering today the smart grid of tomorrow” in which he discussed how the company designs and delivers smart metering.smart grid infrastructures and systems based on the special needs and peculiarities of each utility and how it can help utilities develop their plans and reap the benefits of implementing the concepts today. The presentation also included a short walk-through of the current global industry trends and discussed the opportunities and challenges faced by modern utility companies, such as integration of RES in the grid, use of electric mobility and elimination of fraud.
Romania » Bucharest

Smart Cities of Romania

Intrarom participated in the third edition of Smart Cities of Romania organized on October 10–11, 2017, under the auspices of the Commission for Education, Science, Youth and Sports and the Commission for Public Administration and Territorial Organization of the Romanian Senate. During this 2-day event, over 500 participants had the opportunity to listen to 51 speakers. Among the most discussed issues were the practical ways of applying the new Public Private Partnership Law, whose methodological norms are still pending, and the financing terms offered by the European Bank for Reconstruction and Development (EBRD). Event presentations also included concrete examples of how and when market consultation procedures can be used in line with the new provisions of the Public Procurement Act, as well as smart models of good practices by the municipalities of Timisoara, Sibiu and Cluj.

Romania » Bucharest

ZF Digital event

Intrarom, jointly with Palo Alto Networks, participated in a round table on cyber security solutions organized by Romania’s leading business daily. Dragos Balcu, Intrarom’s Business Development Manager talked about cyber-attack prevention using Palo Alto Networks solutions that can provide comprehensive digital protection to businesses. Apart from the technical solutions offered through strategic partnerships with leading industry vendors, Dragos presented Intracom Telecom’s full range of IT security services, including consulting, architecture design, implementation, optimization, maintenance, legal consultation and process optimization services for the implementation of the General Data Protection Regulation (GDPR) regulations.

Romania » Bucharest

Customer Experience Dinner

Last October, Intracom Telecom participated in the 2018 ITS Hellas Conference held at the Ministry of Infrastructure and Transport in Athens. The 2-day conference addressed the current advances in the field of Intelligent Transport Systems (ITS) and discussed the future plans of major stakeholders regarding Greece’s road infrastructure. As the coordinator of the H2020 “symbIoTe” research project, Dr. Sergios Soursos, Intracom Telecom’s Master R&D Engineer, delivered a speech in which he explained how IoT interoperability is crucial for ITS, especially for cross-country and multi-modal transports, green and urban routing, and connected and automated vehicles.

Greece » Athens

ITS Hellas Conference

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Romania » Bucharest

Customer Experience Dinner

Last October, Intrarom, in partnership with Genesys, organized a Customer Experience Dinner during which they discussed ways of making customer service an organization’s most effective cross-selling and up-selling channel, as well as solutions to enhance digital consumer engagement, drive improved results, lower costs and forge profitable, long-term relationships. The event, which was attended by representatives of leading online retail players, banking and healthcare institutions, and telco, energy and utility operators, disclosed the results of an online retail industry survey on the abandoned sales basket and suggested solutions to improve the abandonment rate, targeting the online retail market.
Today, AIA, a privately managed company, forms a unique entrepreneurial entity of economic and social development in the Attica region. The airport community employs over 13,000 people and hosts more than 300 companies, making it one of the largest employment engines in Greece serving more than 20 million passengers and approximately 180,000 aircraft movements (2016 volumes).

Challenge

Since airport opening in 2001, the Airport Company embraced top-notch technological developments as a key pillar for airport progress across all fields of its activities. AIA recognized the strategic importance of voice & data communications and became a licensed wired/wireless telecommunications and Internet services provider within the airport community. In the meantime, travelers’ expectations are increasing, people are used to having immediate access to information, services and applications.

The Athens airport, embracing this new approach, transformed the way to communicate by deploying:
- Next Generation Networks (NGN) integrated voice and data services
- Next Generation Wireless Network
- RoIP technologies for Air-to-Ground communications.

NGN integrated voice and data services

The solution design incorporated provider grade IP/MPLS technology which provided AIA with flexibility in service creation, provisioning and monitoring, as well as segregation and security across customer and AIA information, thus resulting in predictable network behavior supporting demanding customer SLAs. Emerging networking technologies, common network infrastructure, networking and open technology standards, enable the airport to increase the effectiveness and efficiency of security solutions by allowing converged IP network services traffic, to move rapidly along a secure and common backbone.

Campus network

Common networking infrastructure equipped with 40Gbps backbone and high-speed Gigabit Ethernet access ports are the basic features of the Campus Network that serves the whole airport community and enables airport to make use of sophisticated customer and enterprise applications, including Unified Communications, IP Voice and Video Telephony, Collaboration, Contact Center, Multimedia, location-based services as well as mission critical applications including security, airport and airlines operations.
INTERVIEW | February 2018

Data Center network

The airport’s multi-tenant environment requires instantaneous, secure communications between airlines, federal agencies and local authorities. Critical services providing flight and airport information to the general public as well as public Internet access in common areas and airline travel lounges rely on real-time, uninterruptable communications between the airport’s systems. Utilizing more than 83 terabits per second (Tbps) of overall switching capacity and up to 768 native 10-Gbps ports, AIA’s Data Center network infrastructure is designed to deliver exceptional security, enhanced availability and outstanding scalability.

Design simplicity, modern Bring-Your-Own-Device (BYOD) policies, cloud computing support, Unified Communications, QoS-enabled transport technologies, scalability, availability and security, are followed as design principals in accordance with the airport’s digital business strategy.

Unified Communication

Voice traditional services were reformed and enriched through a Unified Communication platform that delivers voice, video, presence, instant messaging, voice messaging, screen sharing, and conferencing capabilities to the whole airport community.

Airport business customers owning an individual IP Telephony system can connect to airport’s IP Telephony System (Business SIP Voice service) via airport Campus network, utilizing Session Initiation Protocol (SIP). This service can be utilized as an alternative to traditional ISDN.

Mobility

Regardless of their location, devices, or applications, airport community users are provided with integrated presence, instant messaging, voice and video, voice messaging, desktop sharing, and conferencing capabilities solutions, which enable them to have exceptional collaboration experiences in the office and on the go.

Contact Center

Airport’s SIP (Session Initiation Protocol) based Contact Center facilitates all forms of communications with the customers. Multi-channel engagement models that leverage innovative technologies by integrating voice into business digital channels strategy have been implemented. Contact center agents can handle both voice calls and data applications like Web-based chat, instant messaging, e-mail and Social Media.

Air-to-Ground (A2G)

Air-to-Ground (A2G) is a vital system for the smooth operation of the airport business. Athens International Airport uses the system to provide secondary Ground-to-Airlines communication services between the overflying aircrafts and the airlines Station Controls (StaCo). The replaced A2G analogue radio communication network was based on PCM, an obsolete technology that could not leverage the benefits of the existing IP infrastructure. Therefore, it was critical for AIA to replace the old infrastructure with a contemporary one that would offer industrial grade reliability, future proofness, and retain customer satisfaction.

The utilization of Radio over IP (RoIP) technology for a mission critical system, combing the analogue RF communications in an IP transition backbone, was a real challenge for the airport IT. The Athens International Airport is the first airport in Europe to adapt RoIP technologies for Air-to-Ground communications.

Next Generation Wireless Network

Athens International Airport’s New Generation Wireless Network (NGN) opens a new digital experience for everyone in the airport. The upgraded wireless network is fast, reliable, secure and allows connections up to 1 Gbps, that are 15 times faster than 4G found only on terrestrial networks till today.

And all these while maintaining support for older devices that still utilize legacy protocols. The new Unified Wireless network is designed to support both airport mission critical as well as consumer popular applications.

“Athens International Airport constantly engages in exploring technologies in order to offer services of the highest standards and quality to its passengers, airline partners, and concessionaires. The New Generation Networks project has been fundamental in designing robust & future proof solutions. Intracom Telecom & Cisco are proven to be valuable partners in the successful implementation of the project.”

George Demetriades, Director, IT&T Business Unit of Athens International Airport
The new design makes the network flexible, resilient and reliable enough to serve professional grade mobility services for the airport community. More than 15 wireless applications are currently offered through the Wireless infrastructure:

- Free Unlimited Internet access for everyone in the airport (Ath Free)
- Advanced Internet access with guaranteed Bandwidth (paid service)
- Quality monitoring of Airport public areas (i-mind – LAS audit control, Cargo Monitoring, average CQI queuing time)
- AIA busses arrival time estimation on Airport bus-stops (Smart Bus)
- Customer opinion survey on Airport concessionaires stores (Vote for a smile)
- Quality control of airport’s PRM services as well as Baggage reconciliation service

The coverage expands to cover all terminals including difficult areas like the underground delivery driveway and the underground Link. A long-term challenge is closer than ever as mobile IP telephony becomes a tangible target with the advanced features of NGN. Another new technology that is introduced is location based services or LBS. With LBS a whole new set of services and applications becomes available for the airport company and its customers. LBS enables applications such as:

- Passengers flow Optimization
- Queue Management
- Asset & Staff Management
- Retail Analytics
- Dynamic Advertising and signage
- Indoor location and Wayfinding

The rollout challenge

Besides the solution design, the actual rollout of the project in a live airport environment is a challenge in itself. AIA’s operational model with continuous 24x7 operations shrinks IT maintenance windows and make it a daunting task to apply changes to the production IT environment without impacting service availability.

The whole project was designed with applied Project Management Methodology. Risk management activities were employed, to identify uncertainties and plan for mitigating actions in order to minimize impacts in case the risks materialise.

A phased approach has been employed, covering the project’s lifecycle spanning from design, lab testing, implementation, systems migration, training and technical support. Due to the criticality of the services provided in AIA’s live network, extensive lab testing and careful migration planning has been implemented to ensure seamless transition to the upgraded network.

At the same time failsafe mechanisms include planning rollback procedures to guarantee service availability.

Solution providers

Intracom Telecom delivered the infrastructure that enables AIA to rely on wireless technology to support mission critical applications.

The 1st phase was completed on-time in June 2016, while it involved the upgrade of AIA’s Wi-Fi services and the introduction of new services including Baggage Reconciliation Process.

The 2nd phase relates to the introduction of next generation technologies for Call-Center, Collaboration and Mobility, introduced gradually from May 2017 to April 2018, and will lead AIA to a fully digitalized environment.

We are very pleased to have contributed towards the modernization of the telecoms infrastructure in one of the busiest airports in Europe. The combined offering of Intracom Telecom services and Cisco products enables AIA to sustain growth and improve competitiveness. It is also a great honor that AIA entrusted Intracom Telecom to rollout such a critical project and we are committed to delivering excellence on time, in budget and according to customer current and future needs. Wi-Fi and IP modernization advanced services have already been deployed, both for the traveler and the airport community and contact center modernization services are currently underway."

Anastasios Dimopoulos, General Manager of Telco Software & Services Business Divisions of Intracom Telecom

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Anastasios Dimopoulos, General Manager of Telco Software & Services Business Divisions of Intracom Telecom

“The Athens International Airport’s project was one of the most challenging we have managed with our partner Intracom Telecom. We have used Cisco’s cutting-edge technologies to meet the increased needs arising from continued growth of the AIA’s passengers traffic. The successful implementation of the project and planning for further investment by AIA in Cisco technologies, confirms our credibility as a leading company in the ICT market.”

Antonis Tsiboukis, General Manager, Cisco, Greece, Cyprus & Malta
Virtualized Wi-Fi for MGTS in Moscow

Intracom Telecom’s Virtualized Wi-Fi Services platform revolutionizes the way in which MGTS utilizes and shares physical resources.

MGTS challenge

The Moscow City Telephone Network (MGTS), a member of the MTS Group, is one of the largest local wireline telecom operators in the CIS, providing high-quality, affordable telephone communications and Internet access to over four million subscribers in the city of Moscow.

MGTS operates an extended base of thousands of legacy Wi-Fi access points, located in hundreds of individual sites across Moscow’s metropolitan area, offering wireless Internet access to corporate customers.

In early 2017, MGTS was faced with a multi-prong challenge, wishing to establish centralized management of this entire base of access points and, at the same time, efficiently differentiate access of and services to distinct user groups.

MGTS was aware that Software Defined Networking (SDN) and Network Function Virtualization (NFV) is revolutionizing network design and management, and that by coupling these two game-changing technologies operators could automate their networks and enable multi-vendor solutions.

Intracom Telecom’s approach

MGTS commissioned Intracom Telecom to conduct a pilot deployment of its Virtualized Wi-Fi Services Platform, a comprehensive SDN/NFV-powered ecosystem that unifies heterogeneous Wi-Fi access points within a centralized network management and services delivery environment.

The successful execution of this proof of concept (PoC) in 2017, demonstrated the capabilities of the platform in harnessing the power of SDN & NFV technologies and in providing virtualized network functions (VNFs) over Wi-Fi access points. As a result, a live deployment of the Virtualized Wi-Fi Services Platform is planned for 2018 that will allow MGTS corporate customers to scale up their own networks and develop additional Wi-Fi services with minimal investments.

MGTS will be one of the first operators worldwide to adopt such technologies and capitalize on its existing Wi-Fi infrastructure to provide additional services to its customer base.

Among others, MGTS Corporate Customers will be able to extend the functionality of their existing Wi-Fi equipment, enjoying features such as fast network services deployment, full management automation and access to historical usage data, all through a specially designed, user-friendly web-interface. Furthermore, they will be
able to monitor Internet traffic consumption across their networks and, if necessary, change the usage rules for their guests and employees.

This advanced functionality is especially pertinent to organizations with geographically distributed networks, whose IT teams will now be able to adjust and update the necessary services, in one or several branches, on demand.

**Virtualized Wi-Fi solution**

Intracom Telecom's globally unique Virtualized Wi-Fi Services Platform combines SDN/NFV technologies with Wi-Fi. A high-level architectural overview of the platform implemented at MGTS is depicted in figure 1.

The solution enables the centralized and seamless configuration of thousands of multi-vendor Wi-Fi Access Points (APs), providing connectivity services through a user-friendly graphical user interface.

Traffic from Wi-Fi APs is tunneled over any available transport network, including fiber optics, 3G/4G/5G and micro wave links before ending up in a cloud-based platform.

The SDN/NFV environment is realized through OpenStack and OpenDaylight, the most acknowledged open source Linux Foundation projects, ensuring performance and stability aligned with community-driven roadmaps. Through a number of modules developed by Intracom Telecom, operators can take maximum advantage of SDN/NFV capabilities.

**Solution’s business value**

Intracom Telecom’s platform revolutionizes the way in which MGTS utilizes and shares physical resources, enabling the effortless creation of multiple isolated virtual environments. As a result, MGTS enjoys unprecedented carrier-grade virtualization and intuitive point-and-click service function chaining, which allow the operator to maximize the monetization of its existing network infrastructure.

The platform powers a very attractive and highly profitable solution and is ideal for a wide spectrum of service providers (SPs), including telecom operators, municipalities, schools, business enterprises, malls, sport stadiums and airports. It also empowers SPs, like MGTS, to readily create and offer new services with minimal time-to-market by either utilizing Intracom Telecom’s out-of-the-box Virtual Network Functions (VNFs) library or effortlessly integrating new third-party network service functions, as needed.

For more information you may visit www.intracom-telecom.com/vWiFi.

**Highlights**

- Unification of heterogeneous Wi-Fi Access Points, providing centralized network management
- Creation of virtual operators with just a click of a button
- Effortless isolation of service offerings as if they were running on completely separate hardware
- Easy creation of Virtual Network Function chains (VNFs)
- Ideal for service providers, municipalities, schools, malls, business enterprises, sport stadiums and airports
- Intuitive and easy-to-use Graphical User Interface

**Benefits**

- Accelerates the deployment of Wi-Fi network services
- Seamlessly orchestrates services across the whole network
- Centrally manages Wi-Fi APs in a vendor agnostic environment
- Shares infrastructure with service and content providers
- Minimizes CAPEX and OPEX costs
- Minimizes time to market for new network services
- Creates multiple new revenue channels through ad-hoc network instantiation.
Service Providers (SP) have embraced the subscriber experience concept as a means to improve retention rates and financial performance. The key to enhanced subscriber experience is the efficient utilization of network resources across all vendor and technology domains. To successfully implement it, SPs should identify and invest in suitable Configuration Management (CM) solutions that will enable them to outsmart the competition.

Dealing with complexity

Managing the configuration of a network built with nodes from multiple vendors and multiple technology domains is undoubtedly a challenging task. Considering the scale of current network deployments, one can easily realize why massive configuration operations are not standard practice. That’s why SPs rely solely on their experts to carry out the job. Evolving business needs require dynamic adaptation of network conditions, which in turn gives rise to additional complexity and consequently demands frequent configuration changes throughout the network life cycle phases, including planning, rollout and maintenance.

Network wide configuration management is time-consuming, practically limited by vendor-specific node implementations and proprietary command line interfaces (CLIs). Therefore, it requires specialized knowledge and familiarity with all deployed node types.

Monitoring the whole process is important in order to keep track of configuration changes, log user actions and generate notifications for effective troubleshooting. It also requires precision, accuracy and awareness of the impact of configuration changes. Carrying out this task without a centralized solution is inefficient, as it enchains expert personnel and gives a disproportionate rise to associated operational expenditures.

SDN: A future catalyst

Software Defined Networking (SDN) is the latest technology promising to break these chains. SDN is expected to drastically simplify configuration management of multi-domain and multi-vendor SP networks.

SDN-based architectures place a vendor-agnostic controller on top of every technology domain as the unifying point of communication with the relevant network nodes, using standard information models and interfaces. SDN is mainly intended for network-wide configuration management, based on the Netconf (Network Configuration) protocol which appeared in 2006 and recently gained ground over other protocols due to its efficiency.

However, until network architecture and techniques evolve into an SDN reality, SPs need to have a solution for cross domain configuration of network resources that can be centrally, uniformly and efficiently applied across the entire network.
Selecting the optimum solution

SPs could expedite the usually long decision journey that precedes the procurement of software platforms, by reviewing the characteristics summarized below and applying them on existing and near future SDN-based architectures:

1. Defragmentation
The process of network configuration is fragmented, as it is usually performed at the node level or even on a limited scale of a few nodes from a single vendor. The configuration of nodes utilizes various protocols, proprietary node management tools and utilities, such as Local Craft Terminals (LCT) and CLIs. SPs have tried to streamline this process using multiple in-house software tools developed by their experts but the end result is usually additional fragmentation, inefficiency and low productivity.

The optimum CM solution should consolidate the network-wide configuration needs in a single powerful tool with an intuitive User Interface that abstracts the process into simple and easy to perform tasks, which can be performed by all users and not only by experts.

The solution should provide the means to centralize control and homogenize the configuration without errors, irrespective of the technology domain and vendor. Moreover, the transparency and visibility of all changes should be assured so that troubleshooting can be handled in an orderly fashion, eliminating the need to involve experts.

2. Knowledge base
The optimum CM solution should provide a unified business environment with central repository, where all configuration files can be transparently categorized per node type, technology domain, vendor or even network lifecycle phase, together with rules on the execution mode and order.

Experts can be used to prepare the configuration files in order to avoid misconfigurations and errors that may lead to outages. This can be done once, with the results stored in the repository and available for use by NOC operators who can take over the labor-intensive task of assigning them across the entire network.

Efficient utilization of resources begins by disengaging the expert personnel and allowing them to focus on network optimization.

3. Degrees of automation
SPs experimenting to determine the degree of automation that fits their operations strategy often face difficulties with adopting the capabilities of a given tool.

The optimum CM solution should cover all scenarios involving the application of configuration files, whether this is performed on-demand or scheduled, per node or massively, and be able to orchestrate it through manual, semi-automated or even fully automated procedures to maximize configuration success rates.

The SPs, therefore, need tools that are ideally developed together with their evolving operational needs and organizational processes, during the transition from a manually controlled network to a fully automated one.

Efficient utilization of resources begins by disengaging the expert personnel and allowing them to focus on network optimization.

4. Change control
CM was traditionally static but as the nature of networks, infrastructure and systems has evolved, continuous fine-tuning is now necessary. Change management via reconfiguration is now an ongoing task that follows the entire network life cycle and as such it should be fully managed and monitored with meaningful notifications and alarms.

The optimum CM solution should maintain the full history of configuration changes and be able to support detailed logging capabilities so that NOCs can audit the configuration process and be able to answer on what happened, when and by whom.

Moreover, the CM solution should support additional capabilities, such as network-wide performance management, enabling the NOC to improve KPIs based on configuration changes.

The future-proof solution

Intracom Telecom’s uni|MS™, already trusted by Communication Service Providers, Public Safety Organizations and Utilities around the world, automates management and monitoring tasks to eliminate error-prone and time-consuming manual efforts involving proprietary and third-party devices. Products from multiple vendors have already been integrated in numerous deployments worldwide, in a variety of management applications that span the Wireless Access, Transport and IoT domains, all using the same web User Interface in existing and SDN-based architectures.

Customer benefits

Intracom Telecom leverages the uni|MS™ Configuration Manager to streamline network-wide multi-technology, multi-vendor and multi-domain configuration management by offering:

• Centralized repository of configuration profiles
• Multiple profiles combined under composite profiles
• Flexible control of configuration mode and order
• Insightful monitoring with notifications
• Full history of changes with detailed activity logging
• Selective automation based on rules for faster rollout
• Mismatch identification against baselines to avoid errors
• Reduced DCN usage with intelligent configuration backup
• Supporting existing and SDN-based network architectures
• Easy integration with other management layers and systems (OSS/BSS).

For more information, please contact us at unims@intracom-telecom.com.