



THE ELASTIC NETWORK



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General

ECI and Esim would like to team up with other companies and join a consortium for the S2R following call:

- **S2R-OC-IP3-02-2020** - Technology Development for Smart Metering and Asset Management Railway systems (TD3.6).

Project

The mutual project is suggested to be around the utilization or adaptation of new slicing technologies (soft or hard slicing), associated with advanced optical-packet technologies. The idea is to create the required closed systems network environment for mission-critical railway services (such as signaling and interlocking), while utilizing the advanced NFV technologies. The outcomes will be deployed along the track-side railway network railway control, using analytics SW packages, supporting low-latency and fast demand-response reaction times and edge computing to better control high speed trains in higher frequency, with a better monitoring of the railway assets along the very long and exposed infrastructures.

ECI Telecom's description

ECI is a world leader in Elastic network solutions for Service providers, Utilities and Critical Infrastructure networks worldwide. ECI's Elastic network solutions ensure critical-mission services assurance, risk-free network migration from TDM/SDH to Optical-Packet, offering a scalable, holistic cybersecurity suite for utilities and critical infrastructure networks

ECI's Elastic Service Platform provides rail and subway operators with a solution optimized for their particular needs:

RISK-FREE MIGRATION AND NETWORK MODERNIZATION: Based on 50 years of experience with hundreds of customers, ECI provides proven, field-hardened, transition processes and partners with their customers from early project development and definition stages, all the way through final implementation.

OPTIMIZED HARDWARE: Elastic interfaces, cost, size, and environment are optimized for railways. **Neptune** supports a full packet portfolio and legacy TDM/SDH interfaces (transported natively or with circuit emulation). **Apollo** provides a full WDM/OTN portfolio for bulk transport. **LightSOFT** provides integrated support for TDM/SDH; packet and optical. High scalability is achieved with in-service expansion options.

OPTIMAL TECHNOLOGY: Elastic MPLS provides the right technology for the right service; MPLS-TP for deterministic packet transport and advanced OAM, required for mission-critical (OT) services; IP/MPLS for dynamic non-mission-critical and IT services. Perfect fit for IT/OT convergence and mission-critical assurance.

Muse SW: Simplifies operations, increases network availability, and reduces TCO. Provides simple intuitive network management for the entire network. Mission Critical Service Assurance is achieved with advanced fault management features. Muse Cyber Security Suite provides optimized security for the OT network, with SCADA anomaly detection, L1/L2/L3 encryption, and Next-Gen firewalls

Esim's description [Elettrica Società Impianti Meridionali]

Since 2006, Esim Group was employing excellent human resources and technologically advanced equipment for railway diagnostic systems, obtaining flattering results as in RFI (Italian State Railways) and also in Private Railways area. In details, the Esim Railway diagnostic department has developed the following diagnostic systems:



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UNATTENDED DIAGNOSTIC SYSTEM: the unattended diagnostic system take off track geometry quality, monitoring: track gauge, cant deficiency, twist, longitudinal, levels and alignment, in automated and remote way without maintenance staff.

RAIL TRACK TEMPERATURE: it consists of variable numbers of measuring points, which can be position in all critical areas for temperature variation.

PANTGRAPHS VIDEO INSPECTION: the video inspection pantographs systems allows the acquisition of high resolution of running trains pantographs, even at high speed, in order to evaluate the state of the contact strips wear of the same.

TRACK GEOMETRY MEASUREMENT SYSTEM: it detects track geometry quality, monitoring track gauge, cant deficiency, twist, longitudinal levels and alignments, with a dedicated staff support.

ROLLING STOCK DYNAMIC WEIGHTING SYSTEM: it detects the load on each wheel of running trains and allows to highlight the longitudinal and transversal imbalances which axles and bogies are subject, generating alarms for weight thresholds overcoming, set by the user.

AXLE BOX TEMPERATURE MONITORING SYSTEM: it analyzes the thermal variation of the same in a stable and security way, in order to provide, during the march, several alarms when tolerance thresholds are passed, set by the operator.

Partners

We seek additional partners, such as railway companies, rail transport and infrastructure manufacturers and operators

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