



amartus

Unlock **network** innovation
Trigger **network** change
Release **network** value

Fast-track network transformation with your trusted software development and integration partner.

WHY AMARTUS?

Amartus is an independent software development & integration services provider. We help network companies of all sizes innovate through software, integrate connectivity solutions, implement new products and services, and maximize network insights.

To help our customers release network value and create new profit opportunities, we apply 16 years of network experience, coupling modern programming & software tools with our networking and telecom heritage.

YOUR BENEFITS

Companies seek our expertise in the fields of inter-carrier connectivity, network automation, service and cloud orchestration, MEF LSO, SD-WAN solutions, and software-centric networks.

- **Grow customer** base with enhanced product & services offering
- **Increase profitability** thanks to software-centric solutions
- **Reduce expenditure** through network automation
- **Build trust** by delivering projects on time and beyond client expectations



R&D and platform development



Software Systems Integration



Testing & Test Automation



Expert Consultancy



Custom Application Development

www.amartus.com

HOW WE CAN SUPPORT YOUR NETWORK



Service Orchestration – Network Services

Network service orchestration expedites service delivery and helps reduce manual coding and service disruption.

We combine niche network expertise and advanced software development skills to help our customers design, build and implement the best cloud orchestration & automation solutions on the market.



Multi-Vendor SD-WAN

Software-defined WAN infrastructure is seeing remarkable growth, and is estimated to reach \$8.05 billion in 2021. The rapid increase in popularity of the technology results from the wide-spread requirement to decrease the number of physical devices and reduce the cost of technologies deployed in remote locations.

Amartus helps service providers and SD-WAN vendors design and develop solutions that allow global enterprises to connect their remote offices in the most cost-efficient way.



Inter-Carrier Service Orchestration

Communications Service Providers have made great progress in automating their internal networks. However, this does not refer to automation of the external interconnectivity, in particular the transactions between CSPs provisioning end-to-end services.

To help CSPs resolve this issue, Amartus has developed a solution that allows deploying a standards-based API platform and automate inter-carrier services interfacing to CSPs existing infrastructure, without the huge effort required to inter-connect to each and every partner using proprietary APIs.



Blockchain/Smart Contracts

Blockchain is a significant disruption for the telco market. Amartus have developed an open platform utilizing the most mature DLT and IEEE standardized blockchain architecture for carriers. This solution greatly advances the automation of inter-carrier settlement processes including dispute resolution and penalty fee execution due to SLA violations.

As a trusted R&D partner, Amartus is always at the forefront of innovation. We have undertaken a number of successful blockchain proofs of concept in the fields of voice/data and connectivity to prove our technology.



Virtualization and Containerization

So far, software transformation has been largely based on virtual machines, ideal for environments running on multiple OSs, or for hosting requiring full isolation.

As digital transformation is permeating networking, we're getting more inquiries from customers building their applications on microservices architectures. We have already completed several container orchestration projects to help our customers serve their future needs. Examples include Kubernetes plug-in development for a cloud automation & orchestration platform or hybrid service chaining (Kubernetes + OpenStack).



Open Standard APIs: MEF, TMF, ETSI, TAPI

Open standards encourage interoperability, combat vendor lock-in, inspire innovation, and set a quality benchmark thanks to collaboration of independent parties.

Amartus has a long-established tradition of industry standard contribution and open source development. As a contributing member of MEF, we are actively involved in the definition of the Lifecycle Service Orchestration APIs. We have implemented numerous commercial projects using LSO Presto, including its integration with SDN Transport API. We are also involved in TMF.



Data Modelling: YANG, RESTCONF, TOSCA

Our standards work goes beyond APIs. Conscious of the benefits of data modelling standards implementation, we have delivered multiple projects to help our clients comply with the latest standards. Some examples of our projects include design, development, testing, and customization of open TOSCA-based service orchestrator, YANG / RESTCONF model-to-model mediation in an Element Management System (optical), Development & integration of ETSI MANO VNF Manager (NetConf-Yang).



SDN Open Source Controller Development: ODL, ONOS

The biggest promise of software-defined networking is the centralized, simplified control of network management, which translates into lower operational costs and increased security.

We help service providers and software vendors realize that promise through custom development of open source SDN controllers. Our implementations include ONOS and OpenDaylight adaptation. We also enjoy the ODL committer status in the Unimgr project that provides support for service orchestration APIs.



Network Functions Virtualization

The NFV revolution was about to bring greater agility, flexibility, and adaptability. There are some opposing views about whether it has lived up to this promise yet, but network virtualization is a fact, and many companies struggle with the transition from hardware-based to virtual.

Amartus takes from the investment in research and innovation to advise customers on modern connectivity technologies and network virtualization strategies, but we're well-rooted in traditional networking. That allows us to better understand where many providers and software vendors are coming from.



EXAMPLE OF PAST PROJECTS

- **MEF multi-vendor integration** of an orchestrator used by a Tier-1 service provider with NMSs from independent suppliers (**MEF standards, MTOSI, TL1, CLI, SNMP**)
 - Design, development, and testing of **service lifecycle orchestration** components of a **TOSCA-based orchestration solution**
 - Research and Development assistance for an **NFV application on the edge** of a provider network for residential users (**R-CORD**) with edge computing and virtualization platforms (**OpenStack, Kubernetes**)
 - **OpenDaylight committer** status
 - **SDN Transport API (T-API) integration with NMS** using **MEF LSO Presto**
 - Providing multi-vendor capabilities for L3 VPN mesh and hub & spoke services to a **multi-vendor SDN orchestration system**
 - **MEF LSO OpenCS Packet WAN** orchestration of CE 2.0 services with SDN **OpenDaylight controller**
 - Development & integration of **ETSI MANO VNF Manager (NetConf-Yang)**
 - End-to-end network management on **OpenDaylight**
 - Multi-vendor orchestrated **SD-WAN** with **container-based uCPEs**
 - **Blockchain Smart Contracts** on **Ethereum** and **Hyperledger**
 - **Network Analyzer** for **Packet & Optical Networks**
- Network Automation Software Development & Integration**



Scala

Java

C++

React

Swagger

MQTT

OpenStack

Groovy

OSGI

Blockchain

Kafka

Angular

Hadoop

Python

REST

YANG

NETCONF

Bash

Kubernetes

Hyperledger

Ethereum



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