

# Zero-touch Service & Network Automation with Inmanta

## SDN & NFV Are Not Enough For 5G

Massive IoT, autonomous vehicles and AR/VR are few of the popular 5G use cases. 50 billion sensors will connect virtually everything, from smart homes and cities up to industrial automation and precision farming.

However, this new network architecture and its (future) use cases come with a wide range of diverse requirements that introduce a big challenge. Requirements such as seemingly infinite capacity, low latency, ultra-reliable communication, massive scale and personalized services, impose high agility and flexibility as well as strong cooperation and consistency across administrative and geographical domains.

To tackle this challenge, we have to radically change the way services are created and delivered, and the network is managed. **All operational processes have to be 100% automated, without human intervention.** Zero-touch automation of network and service management provides the flexibility and efficiency to rapidly create, customize and roll-out new services, while eliminating costly operational errors.

**SDN, NFV and cloud** are currently transforming the telecommunications industry, but **are not sufficient**. These three key technologies virtualize the network and replace the traditional monolithic telecom infrastructure with a programmable, software-driven architecture. They create the foundations for extensive automation, but are limited to a single domain.

The focus should be on **automating the full service that CSPs want to deliver to their customers**. The 5G use cases require an end-to-end solution, addressing the exponential increase in complexity to manage all cross-domain, cross-technology and cross-layer aspects.

## End-to-end Service Orchestration

Inmanta has a holistic, **end-to-end** approach towards orchestration and lifecycle management, covering all aspects of the services and the underpinning (network) infrastructure. It is the only way to achieve zero-touch automation and thus a faster time-to-market.

End-to-end has 3 dimensions:

- 1. Multi-domain:** Inmanta Service Orchestrator integrates and coordinates all different elements of the telco architecture across multiple domains: 3<sup>rd</sup> party VNFs, SDN controllers, virtual as well as physical equipment, datacenter resources, cloud platforms and 3<sup>rd</sup> party services.
- 2. Multi-layer:** An architecture defines multiple levels of abstraction. Inmanta is the top-level (overarching) orchestrator that bridges the (abstraction) gap towards the underlying

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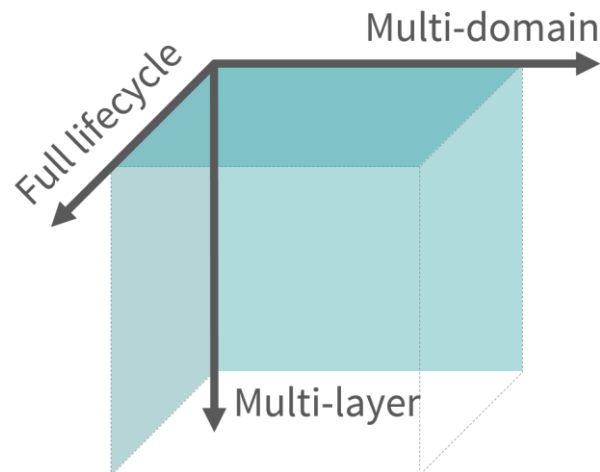
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Inmanta enables CSPs to deliver their services 10x faster and with more flexibility. Its intent-based service orchestrator automates and streamlines the end-to-end operational process. Instead of months and years to deliver services and release new features, Inmanta reduces the process to a matter of weeks and minutes.

layers. Therefore it can operate at any orchestration level: OSS, NFVO, VNF Manager, NMS and element manager.

- 3. Full lifecycle:** Inmanta manages the full service lifecycle. This functionality includes service design, on-boarding, testing, deployment, upgrading, and decommissioning, with support for monitoring, analytics and policies. Inmanta has specific support to manage the state of each type of resource that is defined in the service model.



## Use Cases

- **5G: End-to-end service and network management** automation across multiple administrative and/or geographical domains (MEC, CORD, network slicing)
- **Residential:** Management and orchestration of **vcPE** and collocated services, incl. dynamic chaining of value-added services (security, parental control, home IoT)
- **Business:** End-to-end **network service orchestration of carrier ethernet** (MEF) over multiple domains and across vendors, incl. value-added services (firewall, SD-WAN, NFV)
- **Mobile:** Orchestration and lifecycle management of **virtualized mobile core services** (vIMS, vEPC)

## About The Company

Inmanta NV is a **spin-off of the University of Leuven (KU Leuven)**. Its automation and orchestration technology is based on 10+ years of research and on the founders' leading-class expertise in software engineering, automation, cloud computing, and systems management.

*Inmanta selected by Swisscom, Proximus and Telia as the winning orchestrator of their call for innovation*



swisscom

proximus

 Telia

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To find out more, email [contact@inmanta.com](mailto:contact@inmanta.com) or visit [inmanta.com](http://inmanta.com).

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