

The Orchestration Blueprint for Scalable Private Networks

A Joint Solution by Inmanta,
Arctos Labs, and FNT

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by Experts



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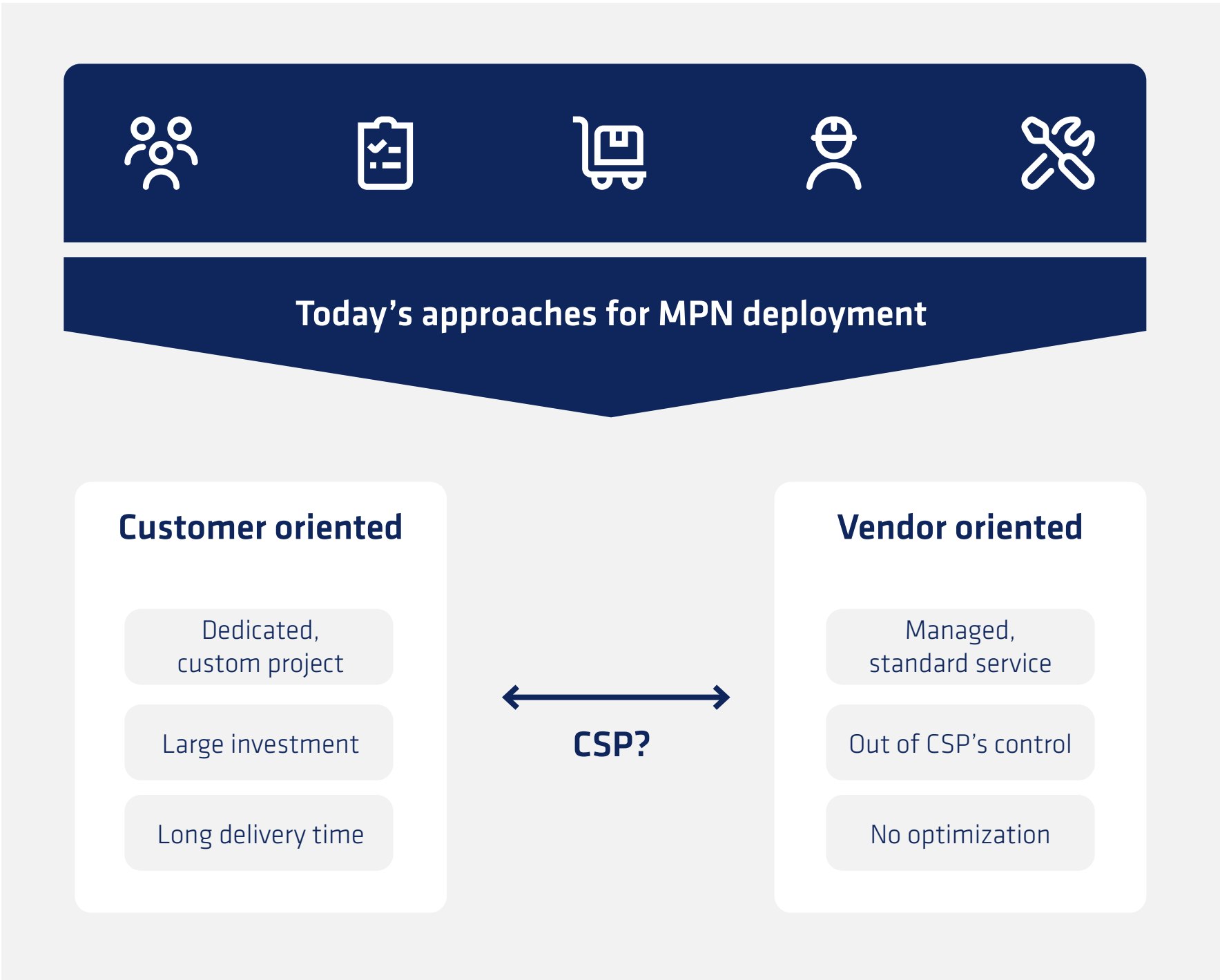
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Mobile Private Networks: Scaling with Flexibility

Mobile Private Networks (MPNs) offer a strategic opportunity for Communication Service Providers (CSPs) to support enterprise digitalization. It is expected, that the MPN spend will reach US\$ 21 Billion by 2030.

However, CSPs face a dual challenge: **first, they must scale deployments efficiently** to serve a growing number of enterprise customers without driving up operational complexity or cost. **Second, they need to meet diverse, often stringent customer-specific requirements**, such as ultra-low latency, heightened security, high availability, and industry-specific compliance. Balancing these demands requires more than just traditional deployment methods – it calls for a flexible, intelligent automation strategy that can optimize resource usage, adapt to varying network conditions, and deliver tailored solutions at scale – all while meeting performance, latency, and security constraints and maintaining operational agility.

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CSPs currently have to choose between a customer-focused approach with dedicated MPN projects, or a vendor-based managed service offering.

Currently, MPN deployments are typically large, unique projects that require a dedicated team to design and provision custom solutions. While flexible, this approach is costly and time-consuming, depending heavily on the expertise of the assigned

team, leading to scalability challenges. In contrast, several major vendors and hyperscalers offer MPN solutions as managed services or SaaS offerings, which address scalability but leave limited room for CSPs to customize solutions or optimize deployment costs.

To achieve efficiency and flexibility at scale, CSPs must adopt advanced automation capabilities. These enable seamless, optimized deployment of MPN components and applications across diverse environments.

- **Advanced Automation:** Enables full automation of MPN deployment, ensuring speed, consistency, and scalability.
- **Multi-Vendor and Multi-Environment Support:** Supports deployment of components and applications from multiple vendors across on-premises, telco cloud, and public cloud environments.
- **Intelligent Deployment Logic:** Deployment processes must consider MPN templates in the service catalog, network and infrastructure characteristics, as well as performance requirements specific to applications and customers.

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- **Optimized Resource Utilization:** The underlying network infrastructure must be available and its resources exposed to orchestration and optimization tools. Monitored for capacity, usage, and health

While cloud-native approaches and edge computing solve some aspects, fully automated and optimized orchestration of MPNs across hybrid environments requires seamless coordination between orchestration logic, resource optimization, and infrastructure awareness.

Joint Solution Overview

Inmanta, **Arctos Labs**, and **FNT** have partnered to deliver an intelligent and flexible MPN orchestration solution that allows CSPs to deploy and manage MPNs at scale – without compromising on cost-efficiency or customization.

This joint solution integrates:

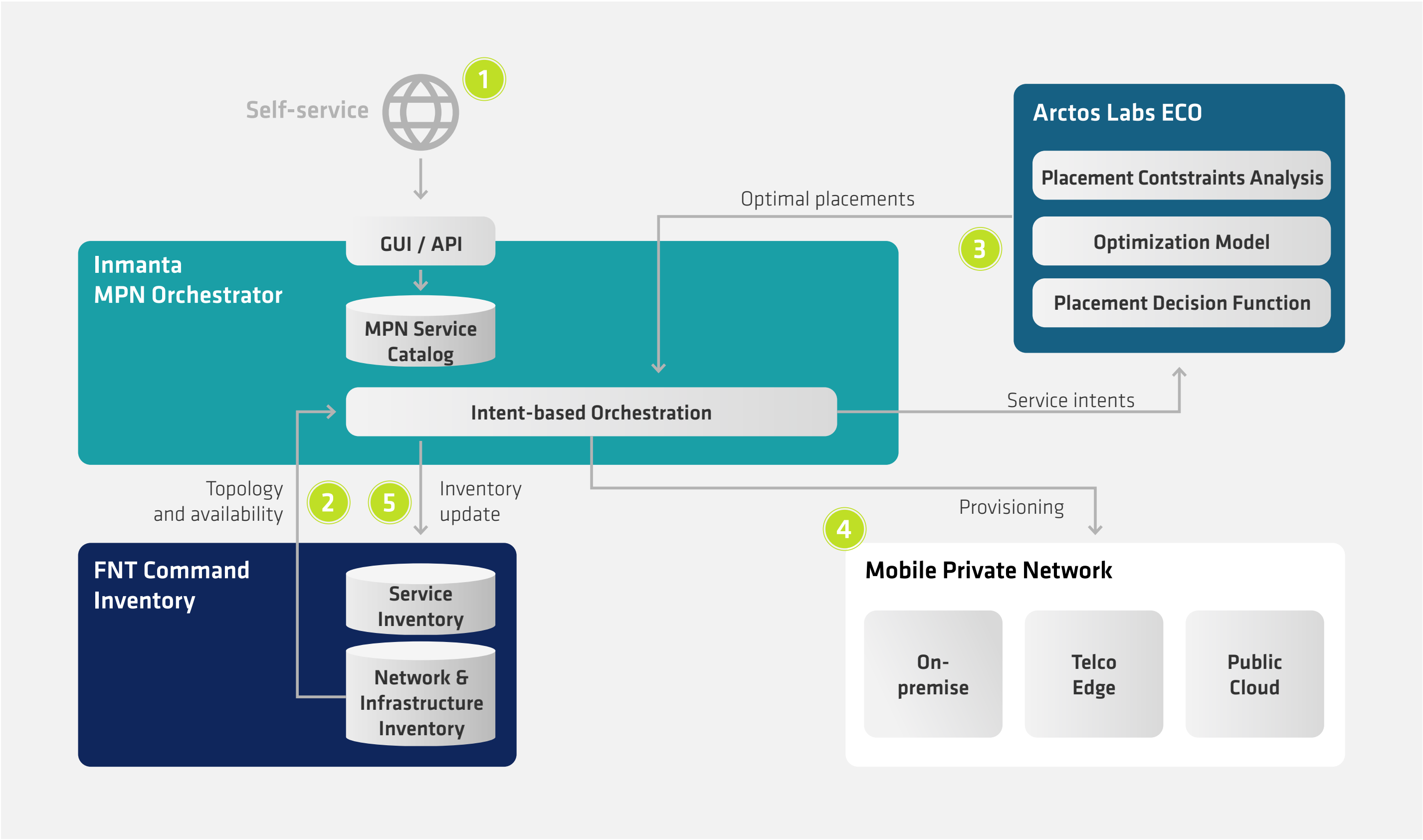
- **Inmanta MPN Orchestrator (MPNO)** – an intent-based, multi-domain orchestrator for automated provisioning and lifecycle management of MPNs.
- **Arctos Labs Edge Cloud Optimizer (ECO)** – a dynamic optimization engine for cost-effective, intelligent, and constraint-aware placement of network functions and edge applications.
- **FNT Command Inventory** – a robust system to dynamically manage and document the underlying physical, logical, and virtual network infrastructure that supports MPN deployments.

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Enhanced Flow Through Integration

The seamless integration of the three components enhances the solution’s ability to accurately assess the available infrastructure and resources. The solution flow is as follows:



The overall flow within the intelligent MPN orchestration solution by FNT, Arctos Labs and Inmanta.

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- 1 **MPN Intent Definition** – CSP or enterprise customer selects an MPN template via a self-service portal, specifying performance and business parameters. MPN Orchestrator receives the intent from the self-service portal / BSS system.
- 2 **Infrastructure Awareness** – MPN Orchestrator retrieves real-time infrastructure data from the FNT Command Inventory, including topology, capacity, and resource availability.
- 3 **Feasibility Check & Optimization** – MPN Orchestrator uses this data to perform a feasibility analysis, calling Arctos Labs ECO for optimal network function placement modeling. ECO uses resource constraints from service intent, costs, and performance goals to recommend the best-fit deployment across on-prem, telco edge, or public cloud. This may in-

clude human-in-the-loop and/or multiple iterations with the optimizer to support alternative placement options.

- 4 **End-to-end Provisioning** – MPN Orchestrator, using detailed infrastructure insights from the FNT Command Inventory as well as ECO placement recommendation, translates high-level intent into low-level configurations and deploys the components via its active adapters. The scope of configuration includes mobile core, transport and RAN domains, that span across On-premise, Edge and Public cloud environments.
- 5 **Lifecycle & Change Management** – Continuous updates to the FNT Command Inventory from the MPN Orchestrator to ensure accurate resource tracking and allow dynamic reconfiguration if the network changes (e.g., for scaling, failover, or optimization).



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Key Benefits of the Integration

Cost Optimization & Improved Customer Experience

The intelligent MPN orchestration solution **eliminates the need for expensive projects** with manual intervention. This has a direct impact on customer satisfaction, as the customer intent can be captured and executed on demand.

Edge Cloud Optimizer ensures that the placement of the 5G Core functions satisfies the **performance and security concerns** of the customer, while Inmanta's intent-based, multi-domain orchestrator makes sure this **optimal placement model** is provisioned and maintained in a **fully automated** way.

FNT Command Inventory provides **deep visibility into network infrastructure**: it supplies accurate, real-time data to support Inmanta's orchestration and Arctos Labs' optimization decisions.

Such approach **reduces the risk of deployment failure or inefficiencies** caused by outdated or inaccurate resource data.

It **simplifies compliance and documentation** for complex, cross-domain MPN setups.

Moreover, this solution **reduces the operational costs** by deploying individual MPN network functions in the most cost-efficient locations from a CSP perspective, spanning on-prem, telco (edge) cloud and public cloud. CSPs can also request alternative, potentially less cost-efficient placements, for example to offer enterprise customers multiple options at a premium price.

Simplification of compliance and documentation for complex, cross-domain MPN setups is key.

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Plug-and-play to create best-of-breed variants

MPN services are particularly challenging as they need a high degree of tailoring for different verticals and may have advanced latency or privacy constraints. Inmanta, Arctos Labs and FNT Software provide CSPs with the tools to **manage parameterizable MPNs, their specific optimization models and resource topology visibility**.

Such **open and flexible architecture** allows CSP to freely **select and integrate best-of-breed components** from any vendor or provider. It enables CSPs to tweak and optimize MPN variants for **different verticals**. The intelligent orchestrator combines these constraints expressed at design-time with the parameters entered from a self-service portal into an **automated provisioning flow** for a specific MPN. This all is underpinned by **vendor- and technology-independent network inventory**, capable of capturing physical, logical, and virtual assets.

Thanks to an open and flexible architecture, the CSP can freely select and integrate the best components from any provider.

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*Best-of-breed, cost-efficient,
and highly customized MPNs
for any industry vertical.*

Conclusion

Inmanta, Arctos Labs, and FNT Software offer a **modular and intelligent orchestration solution** tailored for scalable MPN deployments. CSPs benefit from end-to-end automation, dynamic optimization, and infrastructure transparency – allowing them to deliver best-of-breed, cost-efficient, and highly customized MPNs for any industry vertical.

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About Inmanta

Inmanta is the leading expert in end-to-end service orchestration of services and networks. Recognized by Gartner as a Cool Vendor, Inmanta empowers telecom companies and communications service providers (CSPs) to deliver their services much faster, at scale and with more flexibility.

Through purpose-built multi-domain and truly intent-based orchestration we automate and streamline services and networks end to end, eliminating complexity and minimizing time to cash and total cost of ownership (TCO). Instead of months and years to release and deliver services, Inmanta reduces the process to a matter of weeks and minutes.

Leading telecom and communication service providers rely on Inmanta’s orchestration solutions to deliver mission-critical services, beef up their automation process, increase operational efficiency, and to guide them through their transformation journey. We always strive for excellence in everything we do. We are committed to deliver the highest quality and to continuously improve our products and solutions.

About Arctos Labs

We are a team of very experienced software professionals with a passion for innovation. Our background spans from being lead architects for many of the products you use when making your daily mobile phone calls, to business and product management. We are long-time trusted partners for Tier-1 network vendors and service providers.

During a client assignment for 5G R&D, we started to think about how to distribute workloads across a fleet of edge computing locations. That challenge became a mission as there are so many aspects to consider. That mission resulted in our ECO solution for which we have applied patent protection.

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About FNT Software

FNT Software, headquartered in Ellwangen (Jagst), Germany, simplifies the management of highly complex digital infrastructures in companies and public authorities with its FNT Command Platform. With the cloud-enabled “Software made in Germany”, IT, telecommunications and data center infrastructures can be efficiently recorded as digital twins and documented across all levels from buildings to digital services. The software also offers open interfaces and numerous functions for planning, implementing and automating transformations and changes in an integrated manner. FNT’s customers include more than 500 companies and government agencies worldwide, including more than half of the DAX-40 listed corporations. FNT* operates offices in several locations in Germany as well as in New York, Singapore and Timisoara and has an international partner system with market-leading IT service providers and system integrators.

*Refers to FNT Software GmbH, including its subsidiaries, and FNT Services GmbH.



Transparency Note:

Written by Experts | Authors: FNT Software, Inmanta and Arctos Labs
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