FNT

// simplify complexity

inmanta

End-to-End Network Automation

From Zero to Hero in 6 Months

Network and service automation offer significant benefits for communication service providers (CSPs) managing complex multi-domain networks. A service orchestrator and a unified network inventory are two key components to achieve this. However, getting started and implementing it may prove to be incredibly challenging, and reaping the benefits from automation takes too long to materialise.

The network inventory plays a crucial role in service orchestration by providing a comprehensive and up-to-date view of the complete network and its physical, logical, and virtual assets. Many CSPs fall for the trap of aiming for 100% inventory completeness and accuracy first, which results in lower efficiency. In the end, they usually spend **36–48 months** before even getting started with implementing service orchestration.

Using an **incremental approach to automation**, CSPs are able to bring value to their customers much sooner and reap the real benefits from automation within **6 months**.

Incremental adoption of end-to-end network automation

No compromising on costs, timelines, and efficiency

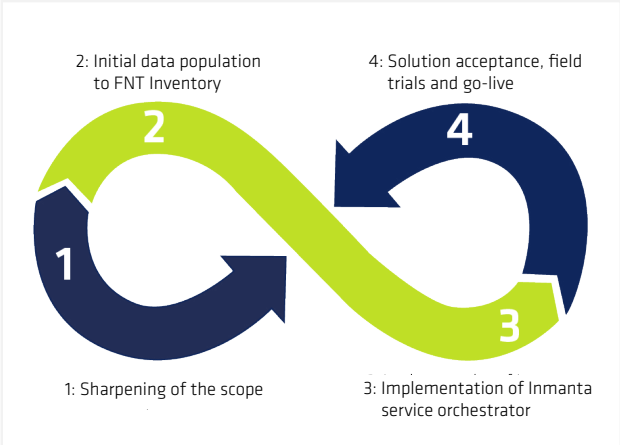
Solid network inventory

Efficient, reliable service orchestration

High precision automation tasks

Incremental Approach to End-to-End Automation

FNT and Inmanta jointly created a blueprint for an incremental approach towards end-to-end service and network automation. This incremental approach addresses the minimum required scope with maximum accuracy of the unified network inventory for the service orchestrator to deploy services.



The Incremental Approach to End-to-End Network Automation

1. **Sharpening of the scope:**
   Service orchestration and network inventory teams must work closely on defining a specific scope for a solution increment, which works as a closed loop.

2. **Initial data population to FNT inventory:**
   Reconciliation of a limited inventory dataset from one or two network domains to reflect the as-is network state.

3. **Implementation of the Inmanta service orchestrator:**
   Use of the orchestrator to "design-and-assign" resources and services in the inventory, thus supporting inventory data accuracy and reconciliation.

4. **Solution acceptance, field trials and go-live:**
   Verification of the final implementation, conduction of field trials, and go-live with the scope.

This approach must also consider an integration with other OSS/BSS systems in a phased manner.

The success of the solution increment depends on the precision of the scope definition: it is crucial to focus on maximising the value and benefits of the increment, with limited inventory data. The most important requirement to the software products behind this approach is that they are as scalable and agile as the approach itself. Therefore, Inmanta **Service Orchestrator** and FNT's unified network inventory based on **FNT Command Platform** can quickly adapt to new network automation use cases and operate within a brownfield environment without requiring a full view on the network and all existing use cases.

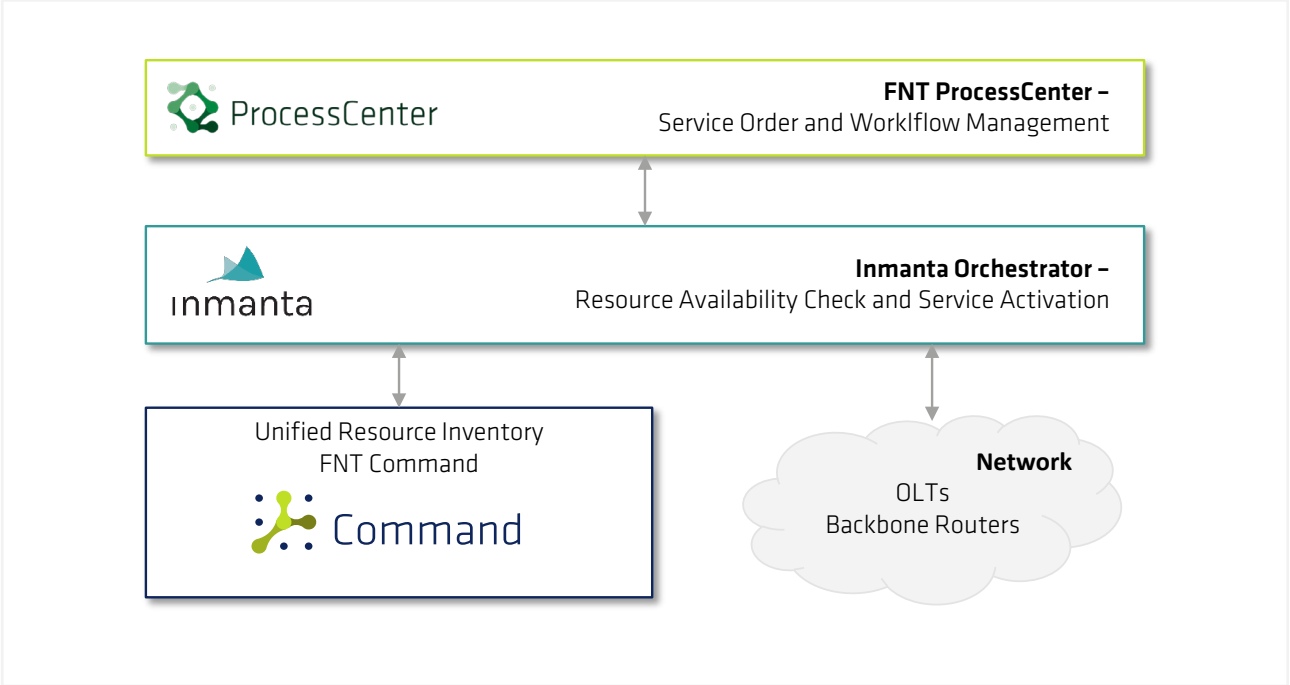
Inmanta's truly intent-based service orchestrator empowers CSPs to rapidly automate their end-to-end services with standardised, pre-defined service models, full-service lifecycle management (from provisioning, updating, scaling up to self-healing and decommissioning), out-of-the-box multi-domain and multi-vendor support, and native support for automated testing and CI/CD.

FNT's unified network inventory, on the other hand, with its out-of-the-box features and extensive library containing 75,000 predefined components can be deployed to instantly start with network documentation. The FNT Command network inventory management can be later extended to all network domains in a phased manner.

Use Case: How Service Orchestration and Unified Inventory Enrich Each Other

The incremental approach of FNT and Inmanta could be demonstrated with a FTTx bitstream access service. The scope was limited to the bitstream access service, and the unified inventory as well as service orchestrator were implemented in parallel. Within a few weeks, a minimum viable product (MVP) was available.

In this example use case, service orders and workflows are handled by FNT ProcessCenter, and service provisioning is delegated to Inmanta Service Orchestrator. Inmanta's orchestrator manages the complete service lifecycle using the accurate network documentation provided by the FNT Command inventory, while at the same time it fully automatically maintains the data in FNT Command to keep it accurate.



High-Level Architecture: Service Orchestration & Unified Inventory

PROVISION AND DOCUMENT A BITSTREAM ACCESS SERVICE ON DEMAND

1 A request for a new service is being initiated in the user-friendly graphical user interface via FNT ProcessCenter. Inmanta Service Orchestrator receives the intent for the new service over the API and instantiates a service from its catalogue. Now the availability check of network resources can be performed via the API in FNT Command.

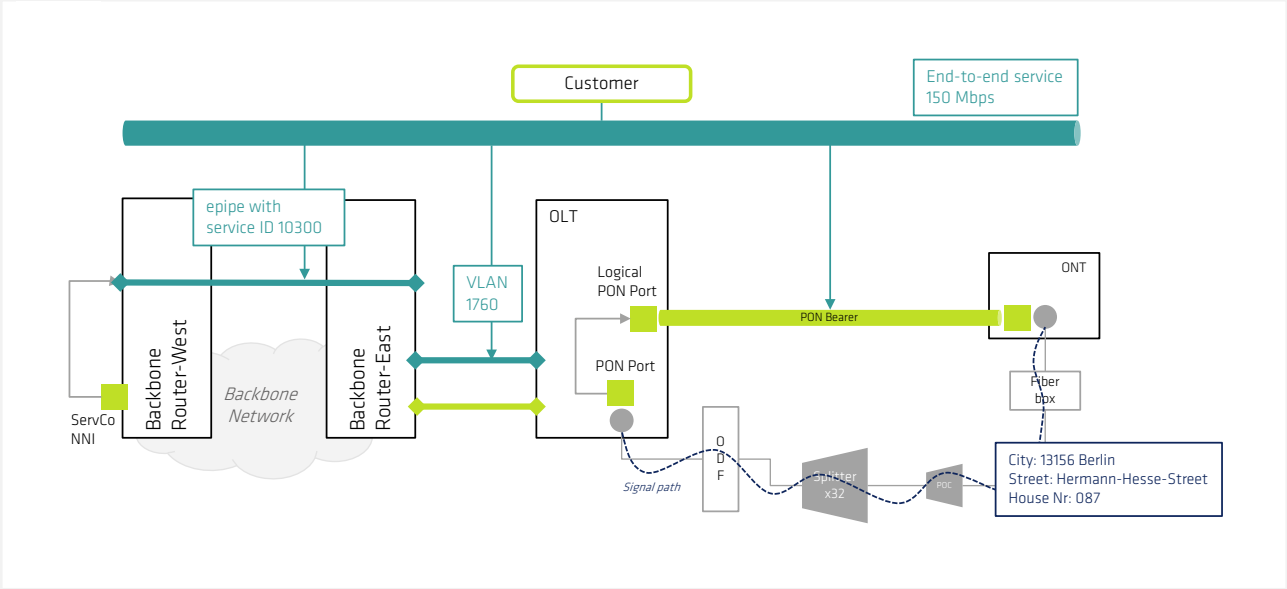
FNT Command's unified inventory holds information about the customer's address, site and installed Customer Premises Equipment (CPE). Upstream active network components – like Optical Line Terminal (OLT) and backbone routers are modelled, including topological relations between these components. FNT Command provides Inmanta with any relevant information about resource availability and capacity. This allows Inmanta's orchestrator to concentrate on the primary task of automated service provisioning without taking the burden of maintaining a full-fledged network inventory database.

2. During the availability check, Inmanta Service Orchestrator reserves resources in the FNT Command inventory in “planning” mode. As reserved resources are set as “booked” in FNT Command, they are going to pop up on any capacity or impact report available in the software, for example on the “Connected Services” report for passive signal paths between Optical Network Termination (ONT) and OLT.

3. The state of the service instance within Inmanta Service Orchestrator is set to “reserved“, and the whole process is waiting for the input from the user, who gets to approve the service activation in his FNT ProcessCenter tasks inbox. The complete workflow is modelled using the current standard for business process modelling BPMN2.0 notation and is very flexible.

4. After the user’s approval, the workflow sets the service instance in Inmanta to the desired state “creating“, which now gives the intent for service activation. The service orchestrator activates the proper configuration on OLTs and backbone routers.

5. After the successful activation, Inmanta’s orchestrator sets the planning protocol in FNT Command from “Plan” to “Actual” which is a sign for FNT ProcessCenter to close the Request.



Inventory Data Modelling

Deprovision and clean-up inventory data

To decommission a service, a deprovision request is created in FNT ProcessCenter. It is required to select an existing planning protocol to deprovision a service.

Inmanta Service Orchestrator will take care of the rest – removing the configuration from the network and even cleaning up the FNT Command inventory.

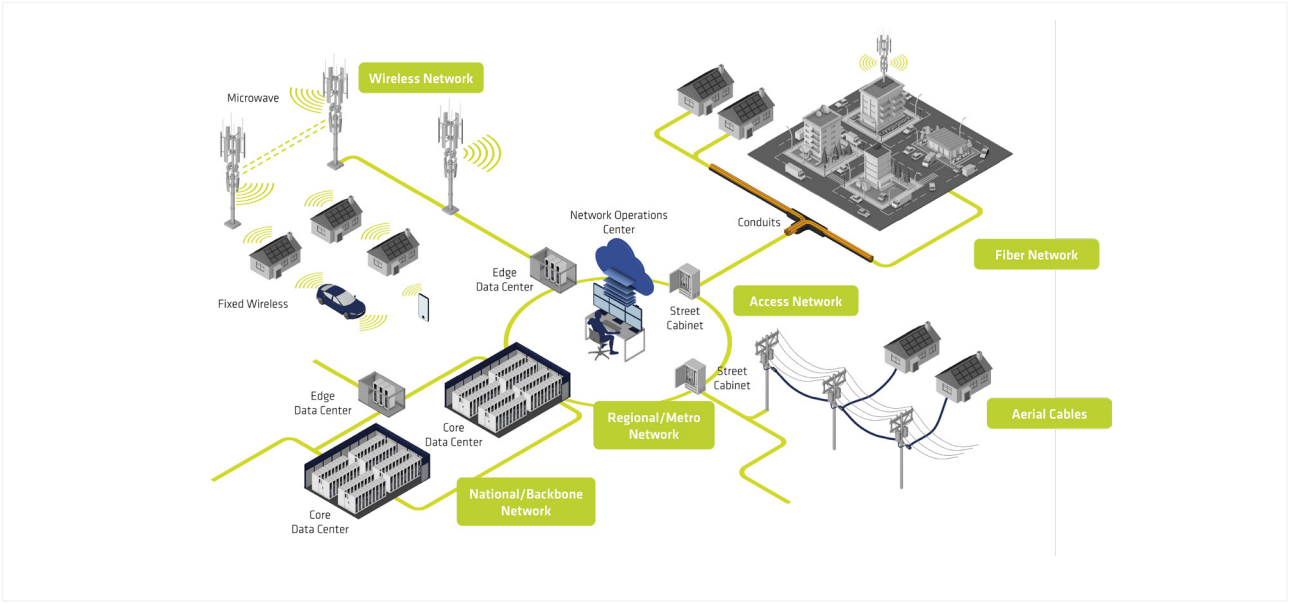
Conclusion

Efficient, reliable service orchestration can hardly be imagined without a solid network inventory as foundation. FNT Command serves as “single source of truth” for Inmanta Service Orchestrator and enables it to perform automation tasks with a higher level of precision across complex network environments.

CSPs should adopt an incremental approach to network automation, prioritising time to market within a limited scope above 100% completeness. Inmanta and FNT provide an open and flexible solution for CSPs to incrementally adopt end-to-end network automation without compromising on costs, timelines, and operational efficiency.

About FNT

FNT GmbH, 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, London, Singapore and Timisoara and has an international partner system with market-leading IT service providers and system integrators.



FNT Digital Twin of the Hybrid Network Infrastructure

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.

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