SOLUTION NOTE

Infinera Orchestrated Migration

Enabling High-speed Migration in the Most Complex Environments

As telecommunication service providers endorse the opportunities of 5G and DAA, they see the need to move away from their legacy TDM-based networks, whether ramping them down or replacing them with IP-based technologies. Unlike previous migrations, which mainly involved patching the network where needed, this migration is a full replacement of the old technology. However, the execution of network transformation is very often handicapped by the complexity of the legacy network. Infinera Orchestrated Migration avoids this complexity by:

- Providing comprehensive insight into the structures of the old network
- Enabling end-to-end planning capabilities within the Infinera Orchestrator
- Providing software-enhanced automation of the migration workflow

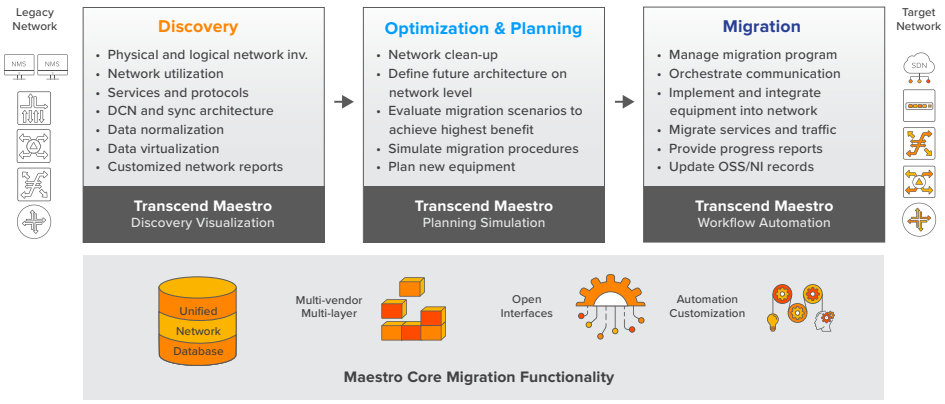

Figure 1: Infinera Orchestrated Migration process

A SOFTWARE-SUPPORTED MIGRATION PROCESS DESIGNED TO TRANSFORM LARGE-SCALE NETWORKS

Migrating large-scale networks requires a process that consistently supports execution with a high cadence, night by night, week by week, year by year. Infinera Professional Services can leverage decades of experience in executing the most complex network transformation projects to achieve these results. For a large-scale multi-vendor network, the migration process is significantly enhanced by supplementing human resources with the core migration capabilities of Infinera Transcend Maestro. Transcend Maestro is a unified network orchestration database with multi-vendor and multi-layer capabilities, with modules purpose-built to support migration automation. For maximum efficiency, these migration-related modules are designed to support the three distinct phases of a network transformation program: discovery, optimization and planning, and migration execution. Discovery lays the foundation for scaling and automation by integrating all migration-relevant data into the Transcend Maestro database. Planning and migration execution are highly automated to ensure high speed combined with unsurpassed quality.

BENEFITS OF INFINERA ORCHESTRATED MIGRATION

- **End-to-end transparency** of network structures and capacity utilization
- **Ease of planning** due to availability of all network information in one system
- **Efficiency** through workflow automation
- **Scalability** to enable a high level of migration velocity
- **Highest quality** by avoiding human transcription errors
- **Combination** of the newest software technology and more than 30 years of networking experience

TRANSCEND MAESTRO MIGRATION ORCHESTRATOR

Infinera Transcend Maestro, a key component of the SDN-enabled Infinera Transcend Software Suite, provides multi-domain network and service orchestration. Transcend Maestro features cover the full network and service lifecycle required to realize SDN orchestration: planning and simulation, deployment and configuration, service provisioning, monitoring, and optimization. Multi-layer capabilities include Layer 3 (IP/MPLS), Layer 2 (Ethernet), Layer 1 (OTN, legacy TDM), and Layer 0 (optical), as well as NFV, microwave, fixed access, and mobile domains. Transcend Maestro has been used to visualize and analyze the most complex legacy and new networks and to support the most diverse workflows.

DISCOVERY OF MULTI-VENDOR, MULTI-LAYER NETWORKS

Discovery includes the extraction of all relevant data for both the current and future network from customers and OSS/BSS and NMS systems. Transcend Maestro incorporates a unified and centralized vendor-agnostic network model database supported by a library of existing interfaces to other vendors' systems. Complementing these Transcend Maestro capabilities, the Infinera software consulting team combines a deep understanding of transport networks with the skills necessary to extract and convert data from a multitude of host systems. Using Transcend Maestro, the Infinera software consulting team has proven experience retrieving data in the most complex environments, e.g., extracting the data from historic Bell standard systems like TIRKS or stitching together network data from a multitude of different vendor NMSs. After the integration of the network data is completed, service providers have access to a wealth of tools and reports for analyzing the network information. The first use case for this analysis is typically identifying network conditions that require cleanup, e.g., inconsistencies between the systems in use, wrongly blocked resources like unused circuits that still exist in the network, or data remnants from unfinished network operations. As a result, Transcend Maestro typically helps to uncover between 10% and 40% of network resources that were wrongly used and that can immediately be made available to support future migration.

MIGRATION PLANNING

Using the network information database and capabilities of Transcend Maestro, Infinera Orchestrated Migration enables in-depth analysis of various scenarios to examine migration priorities, e.g., reducing risks by taking out end-of-life equipment first, migrating end customers to new IP-based services, or implementing strategies to efficiently reduce space and power consumption. After the priorities for the migration strategy have been defined, Transcend Maestro supports the next steps of detailing the prioritized scenarios to create a migration schedule and creating a virtual environment to simulate execution. This simulation environment is used to create the detailed procedures and workflows for the migration. Using its automation and reporting functionalities, Transcend Maestro's built-in functionality can be easily extended to cover customer-specific planning scenarios.

WORKFLOW AUTOMATION

Increasing the level of automation applied to migration execution has two major effects:

- It ensures the scalability of the migration execution, which is essential to meeting target migration schedule goals
- It increases the quality of delivery by avoiding human errors and missteps in coordination

Transcend Maestro enables two primary types of automation. First is the technical automation of the network configuration during the migration, e.g., reading out the former configuration and, through the application of rules, generating and executing the new node configuration. Second is automating the associated workflow preceding and following the migration execution. Workflow automation ranges from sophisticated tooling for progress monitoring to more simple workflow enhancements based on the migration planning data, like work order generation, end customer information, site survey guidelines, or new equipment order requirements.

INFINERA SOFTWARE CONSULTING SERVICES

Complementing Orchestrated Migration, Infinera Software Consulting Services can help customers to get even more out of their unified network data for utilization in day-to-day processes, e.g., to support ongoing network planning, performance, or capacity dashboards or to integrate with OSS/BSS systems. With Infinera's leading orchestration technology combined with our experience with live traffic migration planning and execution, you can be confident your network transformation project will be successfully accomplished on time and on budget, with minimal risk for disruption of existing customer services.

Infinera