

Infinera

Digital Network Administrator

The Infinera DNA combines node-level and network-wide management in one integrated software system, making it easy to simplify network operations, speed service provisioning, and rapidly isolate problems anywhere they occur.

The Infinera Digital Network Administrator (DNA) is a carrier-class management system that offers extensive fault, configuration, performance, and security management capabilities across multiple Infinera network elements and subnetworks.

The Infinera DNA works with Infinera's intelligent Generalized Multi-Protocol Label Switching auto-discovery and auto-provisioning software to enable rapid point-and-click provisioning of managed transparent wave services, ranging from 155/622Mb/s, 1Gb/s, 2.5Gb/s, 10Gb/s and beyond, using a feature-rich GUI.

Based on multi-tiered server architecture, the Infinera DNA can scale to manage thousands of network elements and hundreds of users, and can support multiple administrative partitions for customized management domains. Context-sensitive navigation, integrated online help, powerful debugging tools, easy-to-use service templates, and a wide range of inventory and performance reports are all available to further simplify operations and administrative tasks.

Scalable and Extensible Management Architecture

The Infinera DNA architecture is based on the "Network is Master" model, whereby each Infinera DNA server individually synchronizes to the network. This ensures that any changes introduced within the network—whether initiated from an

Infinera DNA, a local craft interface, or within the network itself—is automatically reflected as an update to all the connecting Infinera DNA servers, keeping them fully synchronized. With this approach, management plane availability is not impacted by the failure or unavailability of a single Infinera DNA.

Multiple Infinera DNA systems can be concurrently deployed with overlapping management domains, enabling a highly available management plane through redundancy. Each management domain can be configured based on any operational, geographical, organizational, or administrative needs. This feature can also be used to support network partitioning to create independent management domains or provide additional scalability for large networks.

As the number of concurrent users increases, the Infinera DNA can support deployment of additional user interface front-end servers onto separate computing platforms to share the load. This distributed multi-tiered architecture enables the Infinera DNA to scale both as the network grows in size and as the total number of concurrent users increases.

Robust, Highly Available Network Management

The Infinera DNA is designed to provide high-availability management access to every Infinera network element. Each Infinera DNA maintains redundant management sessions to each element, regardless of whether the network element is directly accessible via the IP-based Data Communications Network or via an Infinera Gateway Network Element and Optical Supervisory Channel. When a lapse in communication occurs, the Infinera DNA automatically reestablishes communications through one of the alternate paths, restoring user visibility and access to all the managed network elements. Support of dual Management and Control Modules (MCMs) on the Infinera network element itself further enhances the availability of the management plane to end users for a carrier-class management solution.



The Infinera DNA features a comprehensive set of user-friendly graphical applications for simplifying maintenance, troubleshooting, inventory, configuration, and provisioning tasks.



Real-time fault monitoring of network health includes summary and detailed views of alarms and events.



The graphical digital link performance monitoring tool displays real-time performance data across link span, OCG, and channel levels in one consolidated window.



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TMN M.3100 Functional Categories	Integrated EML and Sub-NML Functions
Topology Management	<ul style="list-style-type: none"> Automated discovery and updates of network topology maps and inventory data Integrated real-time alarm status on each NE and link Convenient context-sensitive application launch from the topology map Inventory of all supported circuits on any selected fiber link and NE Multiple concurrent administrative domains
Fault Management	<ul style="list-style-type: none"> Real-time fault monitoring of network alarm summary and event and audit logs User-customizable and system-default filters Integrated search and sorting Context-sensitive alarm views across all managed resources
Performance Management	<ul style="list-style-type: none"> Centralized archiving of all historical 15-minute and 24-hour PM data files (CSV format) from each network element Parsing of all PM data into the database for generating reports End-to-end and intermediate circuit PM views Graphical digital link performance monitoring tool displaying real-time performance data across link span, OCG, and channel levels
Configuration Management	<ul style="list-style-type: none"> Periodic NE configuration database backup and restoration Centralized software download and node-by-node in-service software upgrade Configurable administrative domains for partitioning user visibility
Inventory Management	<ul style="list-style-type: none"> Network-wide inventory reporting of all managed resources, including subnetwork connections, cross connects, ports, circuit packs, links, and nodes Comprehensive manufacturing information for all physical modules Exportable inventory lists: TSV and CSV flat files Detailed circuit tracing and circuit layout record reports
Service Provisioning	<ul style="list-style-type: none"> Point-and-click A-to-Z provisioning application with user-selectable end points Auto-routed in conjunction with Infinera IQ® GMPLS service intelligence Node-by-node cross-connect mode of circuit provisioning Auto- and pre-provisioning modes
Security Management	<ul style="list-style-type: none"> Telcordia GR-815-CORE-compliant security functionality Centralized network-wide administration capabilities for managing user profiles and security audit trails Integrated EMS and NE security model—single sign-on when using DNA to perform nodal functions Six pre-defined EMS access roles User-assignable to multiple roles and management domains RADIUS administration for all NE users
DNA Server	Server platform/OS: <ul style="list-style-type: none"> Solaris 9 (64-bit) and Solaris 10 (64-bit) Sun Fire V240, V440, T1000, and T2000 series servers* Database: <ul style="list-style-type: none"> Oracle 9i and Oracle 10g Standard and Enterprise Editions
DNA Client	Client platform/OS: <ul style="list-style-type: none"> Microsoft Windows 2000 (SP4) and XP (SP2) for PCs Solaris 9 (64-bit) and Solaris 10 (64 bit)-based Sun platforms Java Run-time Environment (JRE): <ul style="list-style-type: none"> 1.5.0

* Consult Infinera Sales for server configuration, which depends on network size, EMS usage, and the number of concurrent network users.