



128 TECHNOLOGY

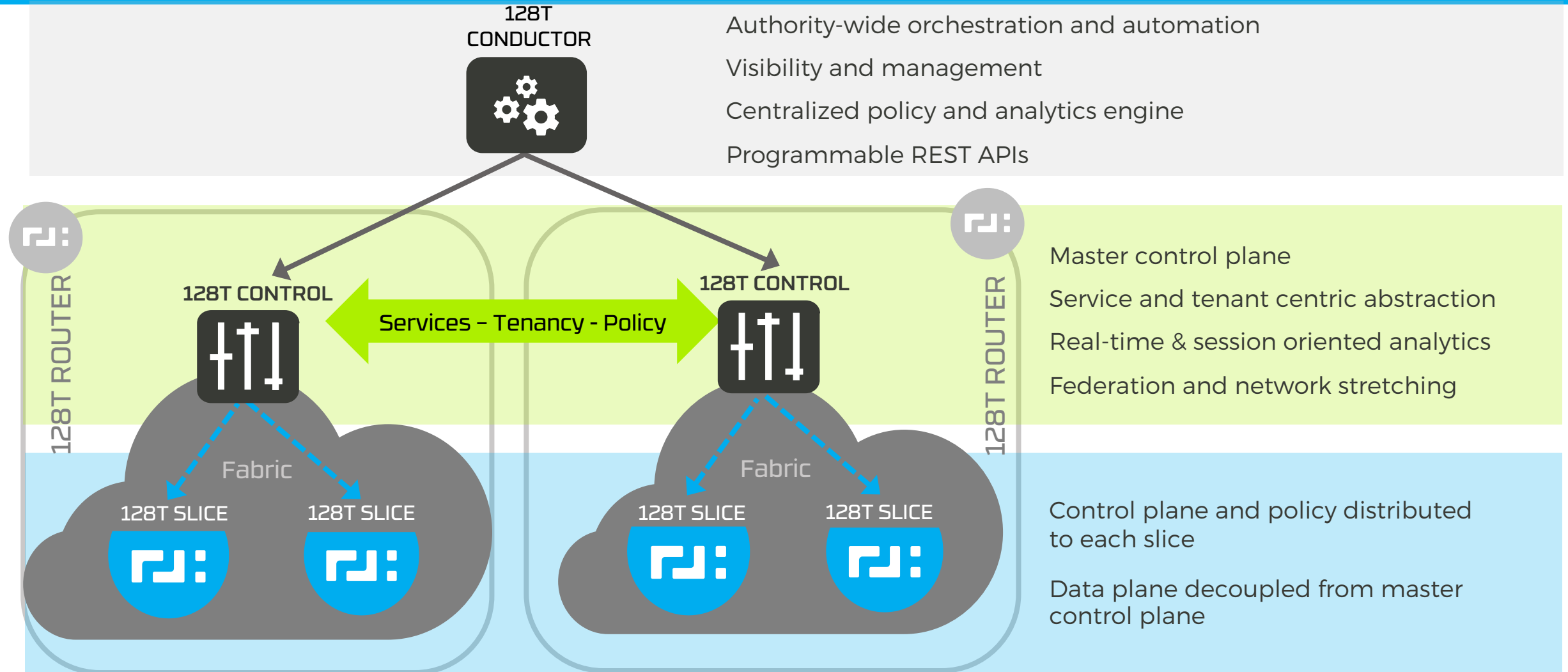
MANAGEMENT TOOLS

SAFE HARBOR

128 Technology has made no commitments or promises orally or in writing with respect to delivery of any future software features or functions.

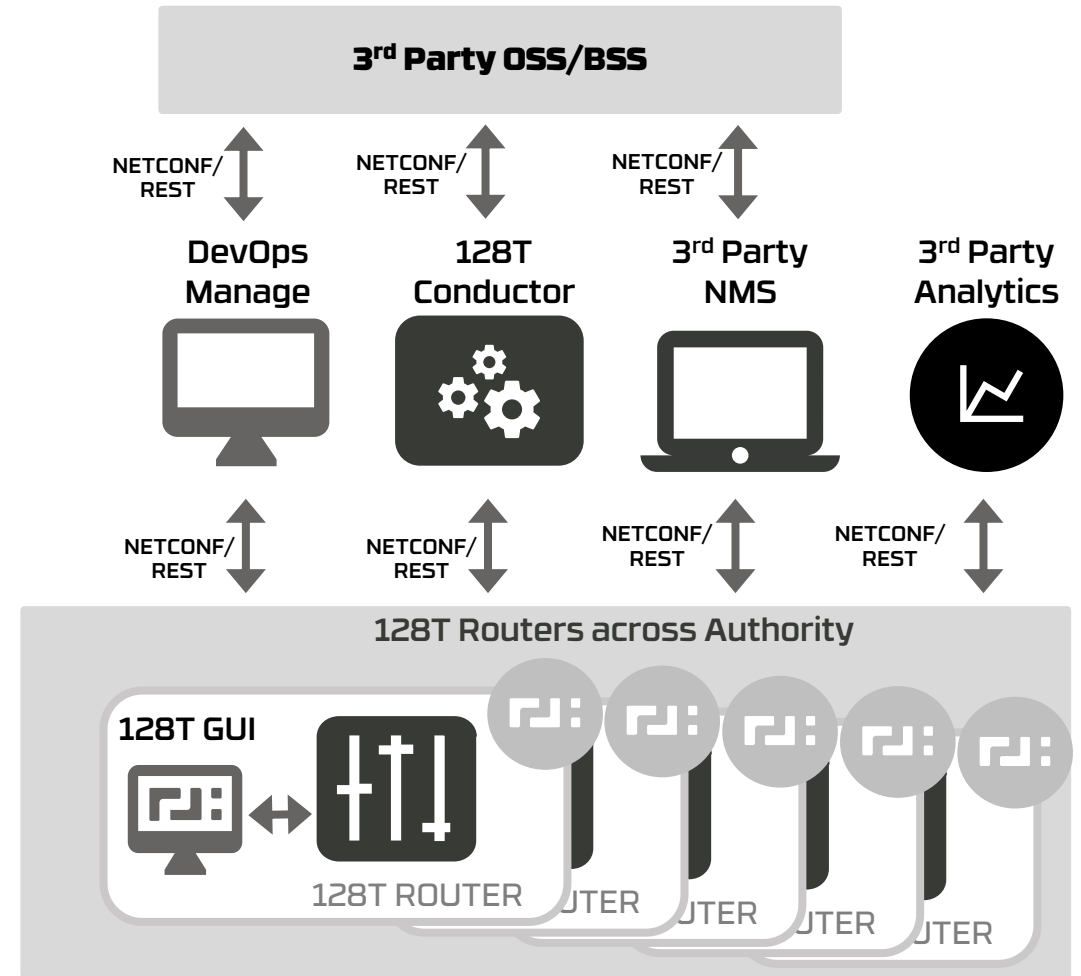
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128T NETWORKING PLATFORM



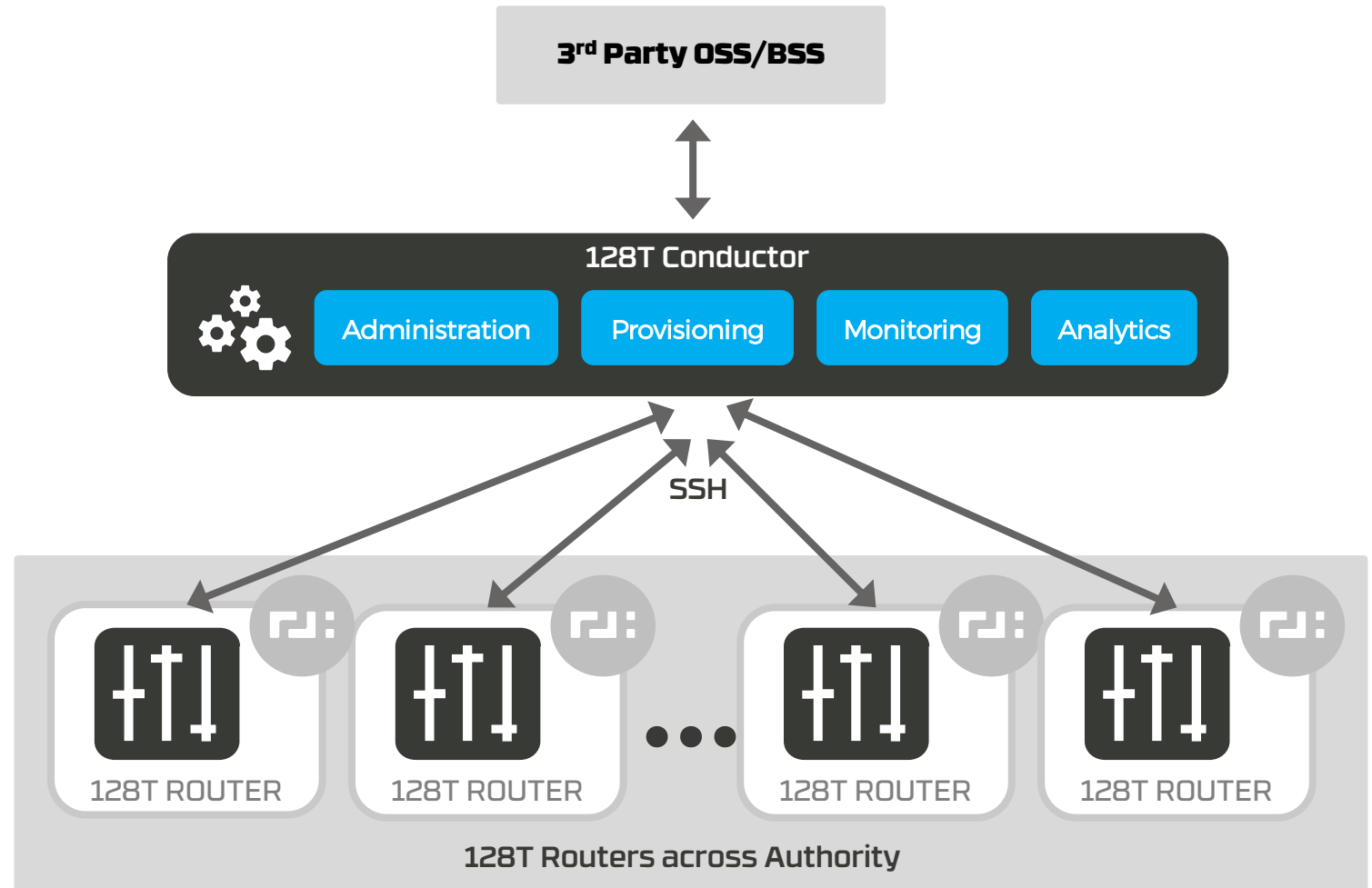
MANAGEMENT OPTIONS

- Authority-wide management critical
- Targeting diverse customer base
 - Enterprises, service providers, cable, telco, international
- Management tools are customer-dependent
- 128 will support multiple tools with common features
 - Administration
 - Provisioning
 - Monitoring
 - Analytics



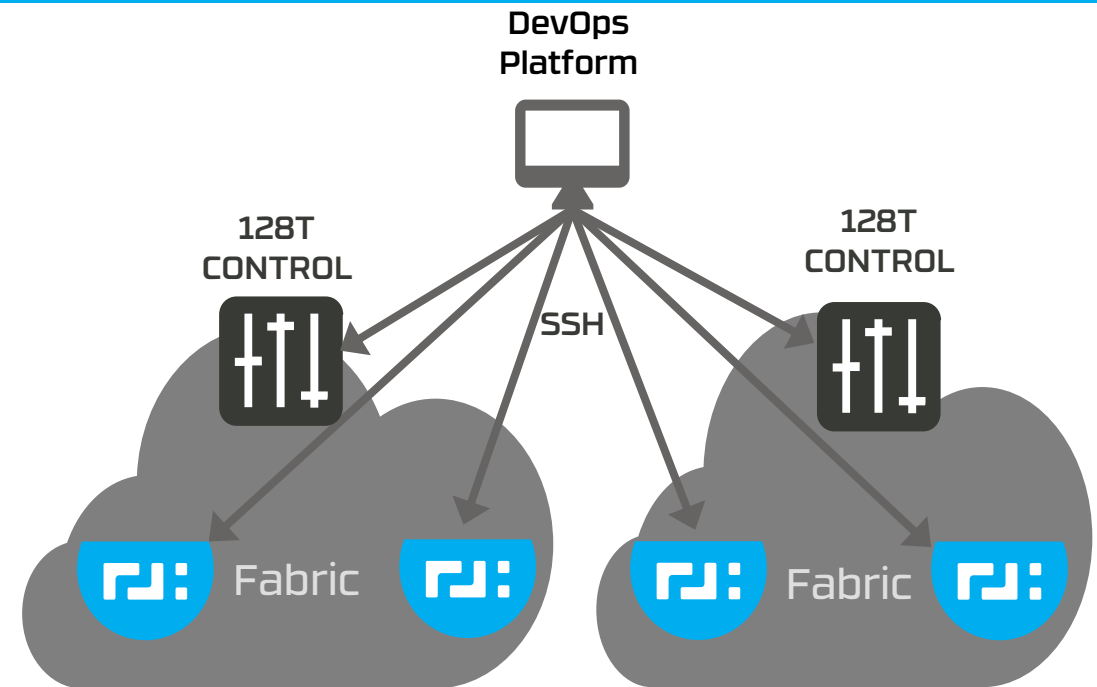
128T CONDUCTOR

- 128T Conductor provides authority-wide management
- Key feature categories
 - Administration
 - Zero-touch installation
 - Zero-touch upgrade
 - Provisioning
 - Zero-touch provisioning
 - Configuration management
 - Monitoring
 - Topology
 - Events and alarms
 - Analytics
 - Network performance
 - Optimization and prediction



DEVOPS MANAGEMENT

- 128T supported DevOps tools for authority-wide features
- Automation categories
 - Administration
 - Zero-touch installation
 - Zero-touch upgrade
 - Provisioning
 - Zero-touch provisioning
 - Multi-router configuration
 - Monitoring
 - Network health dashboard
 - Analytics
 - Session analysis through network
- Community portal for sharing scripts and support



ADOPTION MODELS

- DevOps alone
 - Administration and provisioning straightforward
 - 128T-specific monitoring and analytics difficult
 - Customer profile: Datacenter and cloud providers
- Conductor alone
 - Administration and provisioning may be implemented as DevOps
 - Customer profile: Traditional service providers
- Hybrid
 - Administration and provisioning with DevOps
 - Monitoring and Analytics with Conductor
 - Customer profile: Transitioning providers
- 128 Technology supports all three models

DevOps



Conductor



DevOps

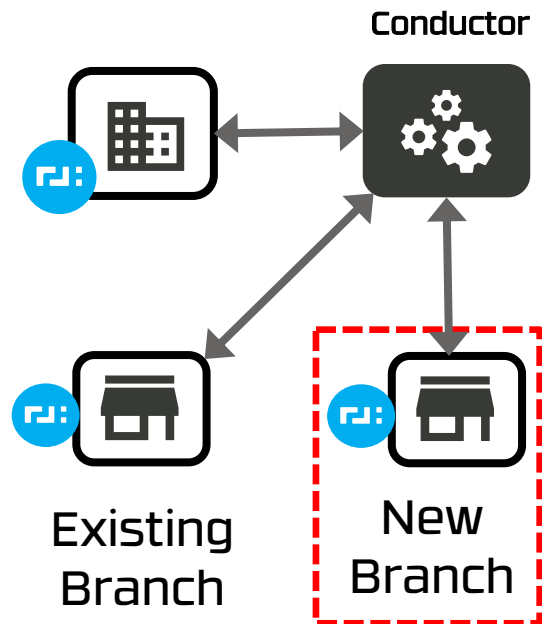


Conductor



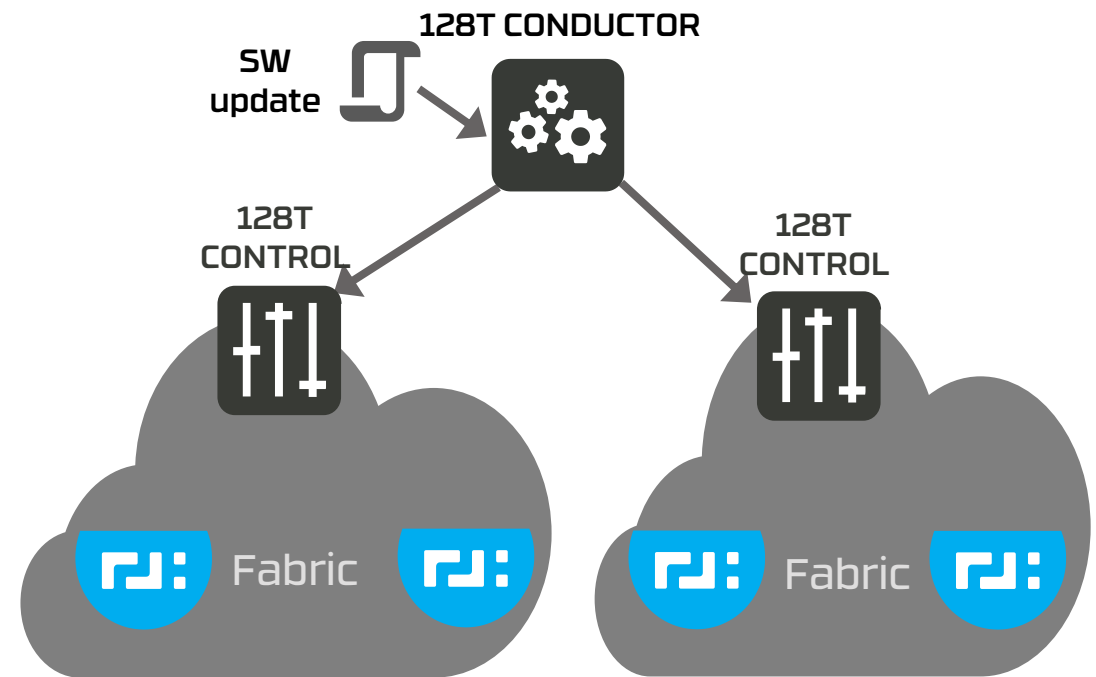
ZERO TOUCH FEATURES

Zero-Touch Deployment



Create new 128T routers for zero touch deployment at new site

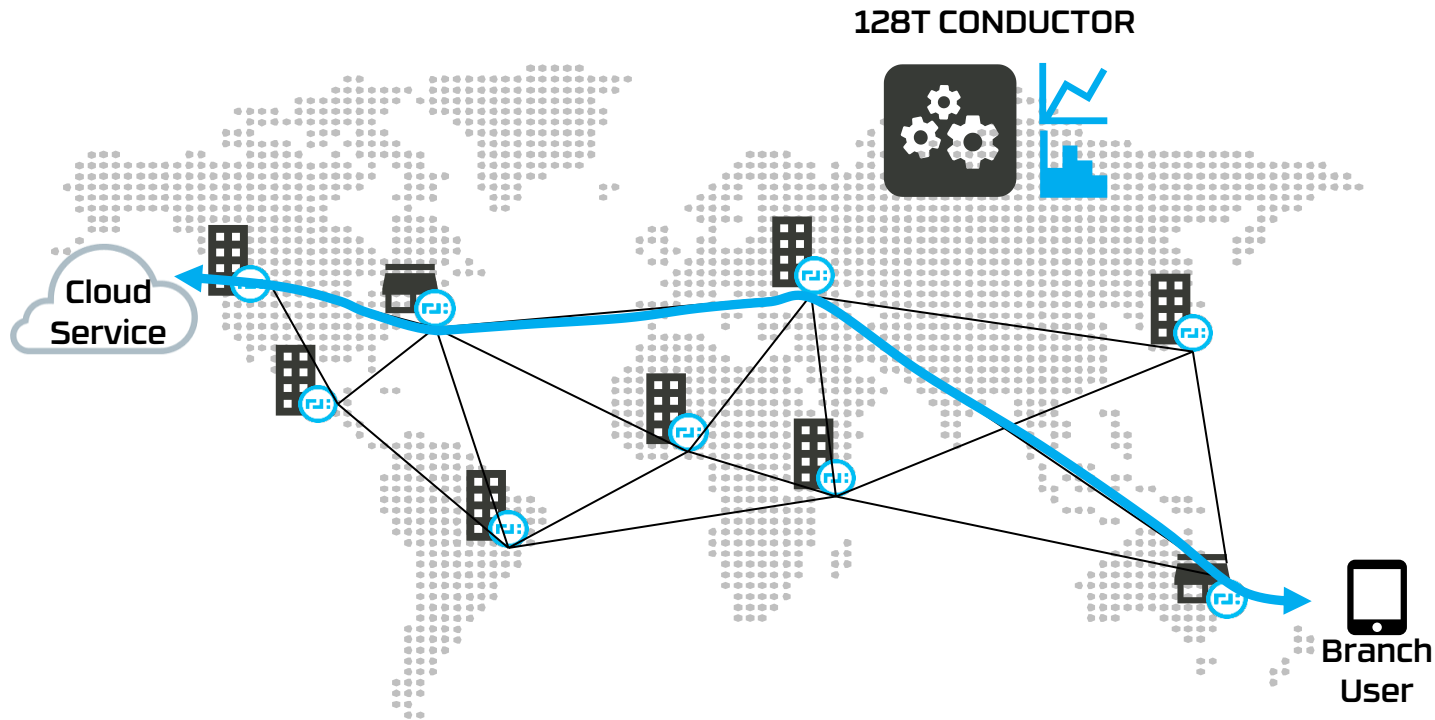
Zero-Touch Upgrade



Update software across an authority from a central administration point

SESSION ANALYTICS

End-to-End Session Analytics



- Trace the path of a service session across an authority
- Apply analytics to session characteristics
- Characterize performance over time
- Quickly identify, resolve, and optimize network deficiencies

MANAGEMENT ADVANTAGES



Customer Optimized

- Multiple 128T management options
- Standards-based northbound interfaces
- 3rd party hybrid integration



Zero Touch

- Zero-touch installation, provisioning, and upgrade
- Full product life-cycle management



Service Aware

- Service and tenant centric management
- Service-based data model
- Services and Tenancy Exchange Protocol (STEP)



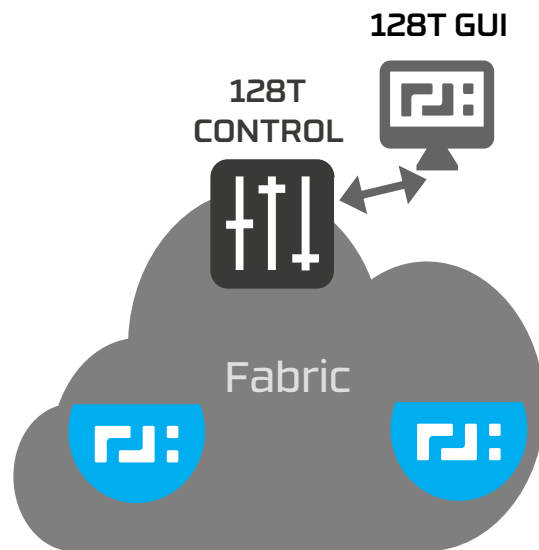
Session Analytics

- Fine-grain session-based statistics
- Data aggregation across authority
- Data analytics to identify, resolve, and optimize

ROUTER VERSUS AUTHORITY MANAGEMENT

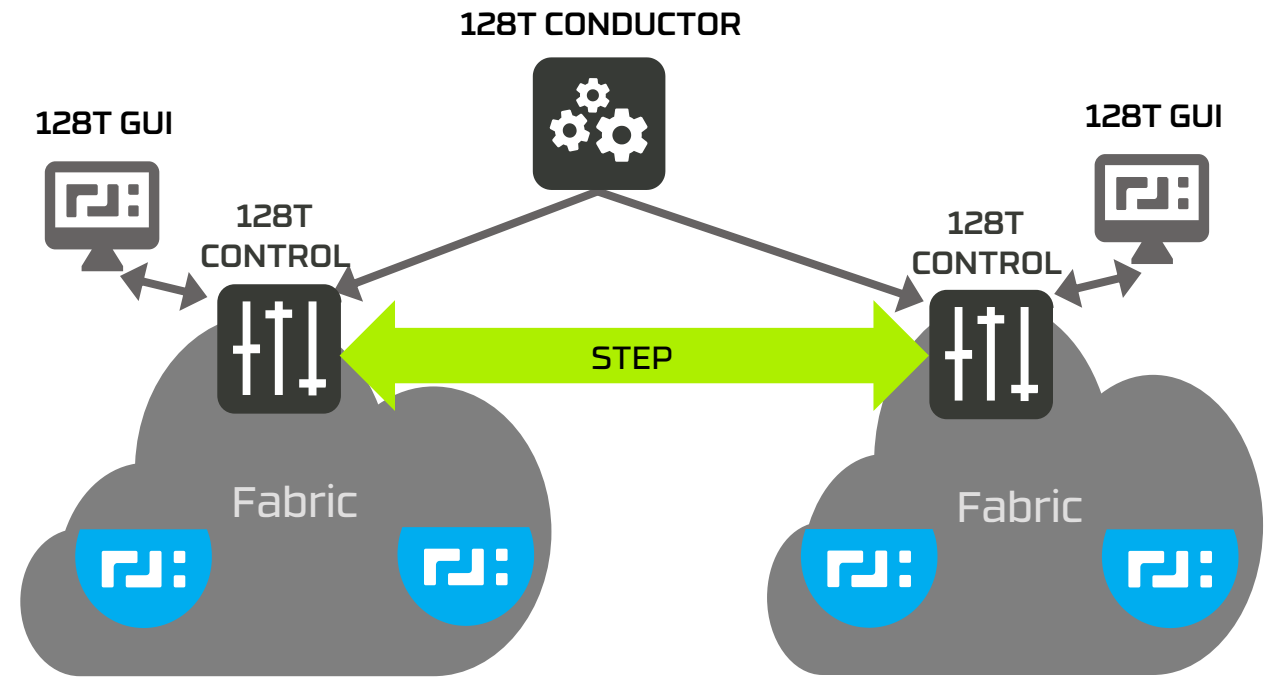
128T Single Router GUI

Single router display of configuration, alarms, services, and analytics



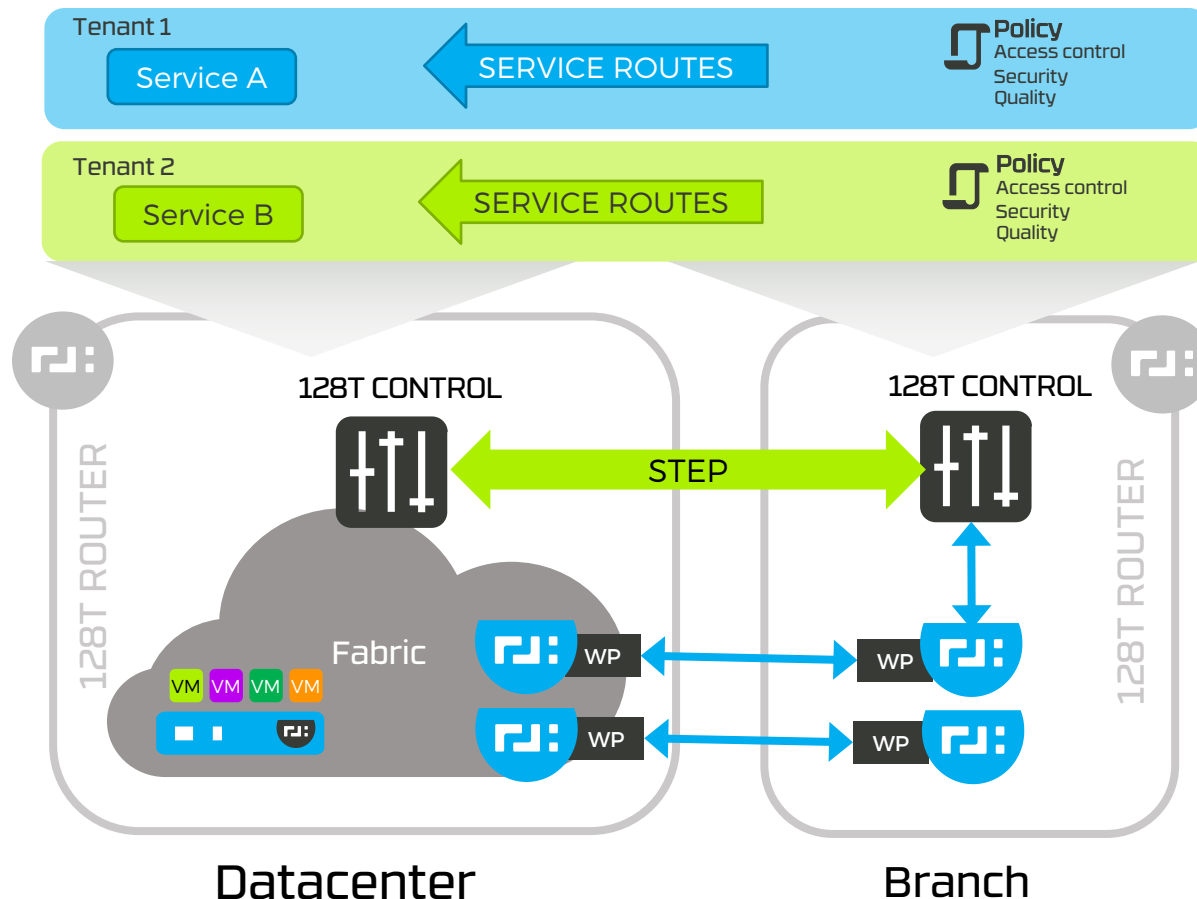
128T Conductor

Multi-router, authority-wide administration, zero touch provisioning, monitoring, and analytics



STEP BASICS: A NEW CONTROL PLANE FOR SERVICES

SERVICES & TENANCY EXCHANGE PROTOCOL (STEP)



Handshake

- Authentication
- Exchange of STEP contact addresses
- List of waypoints are exchanged

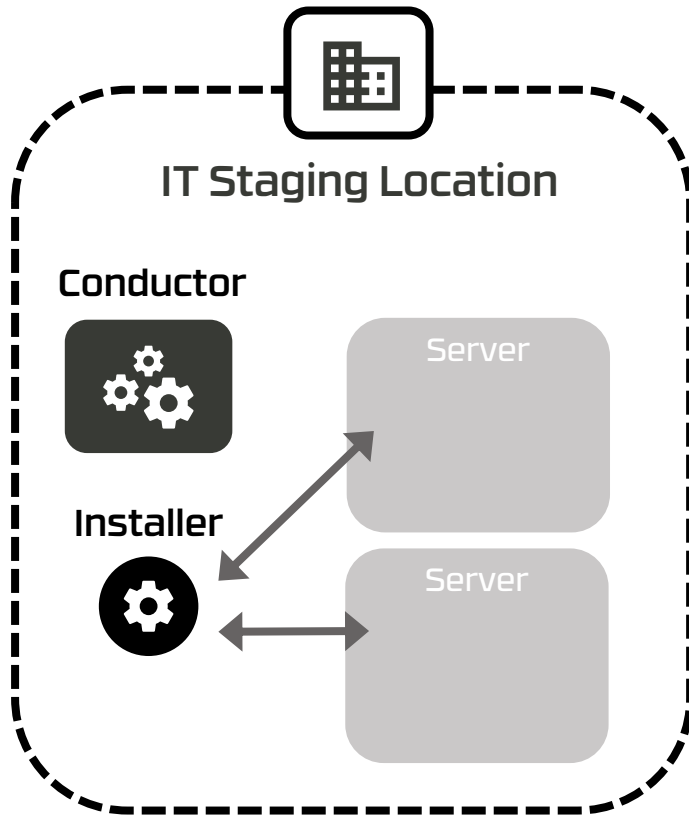
Meshing Up

- Connectivity checks to all waypoint pairs
- Round trip time for each path
- Path optimization policies exchanged
- NAPT learning

Service Exchange

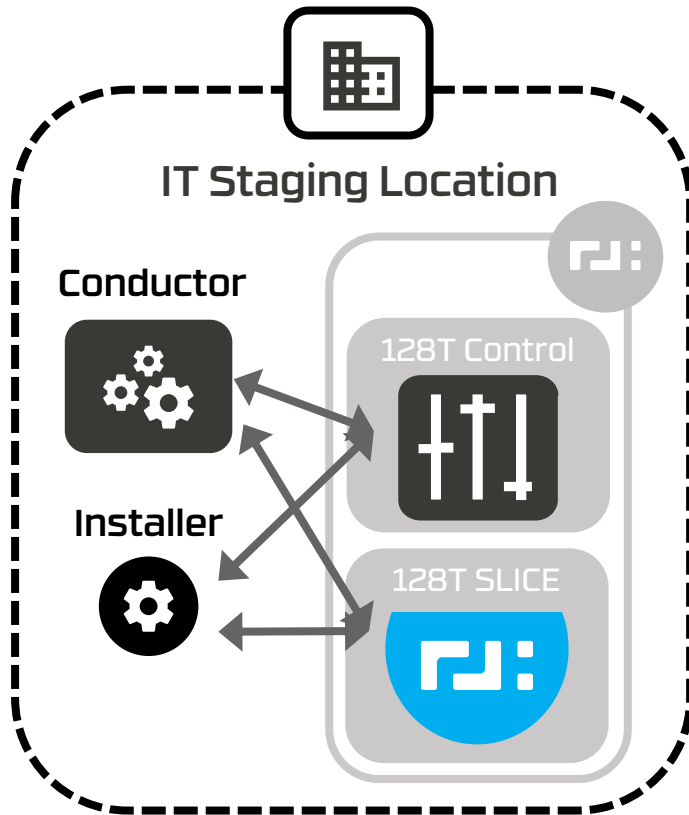
- Service filters
- Services and tenancy exchanged
- Service security and quality policies are exchanged

ZERO TOUCH DEPLOYMENT



- Zero-touch deployment
 - Zero-touch installation
 - Zero-touch provisioning
 - Zero-touch upgrade
- Bare metal example
- Hardware at a staging location
- Installer pushes base image

ZERO TOUCH DEPLOYMENT



- Install 128T software
- Conductor connection
- 128T Router defined

ZERO TOUCH DEPLOYMENT

