



Service Management & Operations

To be competitive, Service Providers must use their resources effectively and efficiently while quickly delivering converging services. Providers that keep up with the demand to deliver new services – IPTV, data, VoIP, Wireless – at the highest level of quality will emerge as leaders. Redcell’s integrated products let service providers move from cumbersome, time-consuming provisioning, to quick, efficient, and automated service-aware delivery. Redcell offers a single end-to-end solution to configure, manage, and troubleshoot converging services and networks.

Redcell Key Features

Service Fulfillment

- Common interface across multiple services
- Track associations between services & customers/subscribers or network resources through the CMDB
- Unified Service Provisioning
- Transaction Model
- Auditing of All Service Transactions
- Service Templates
- Service Preview
- Integration with Pools
- Service Quick Views
- Tools to extend existing services or model & rapidly deploy new services

Service Assurance

- Proactive device/service health monitoring
- Service Diagnostics (OA&M)
- Data Collection and associated formulas and metrics for collected data
- Performance Dashboards
- Prepackaged Monitors

Services

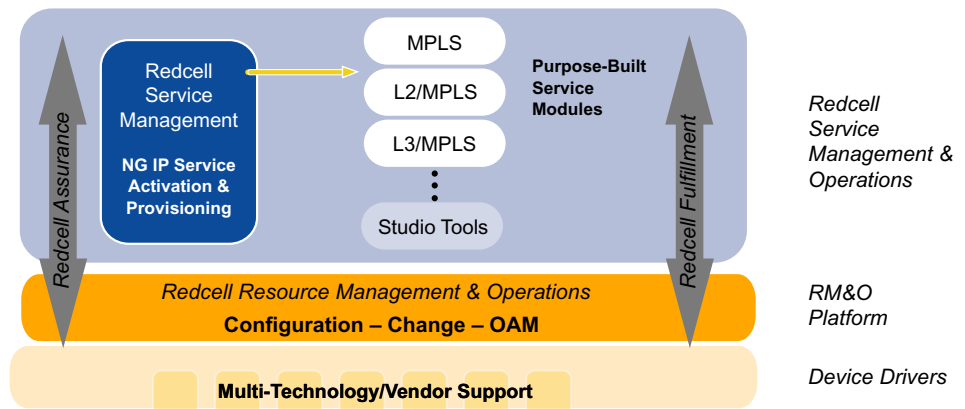
- Core/Aggregation Network**
 - MPLS L2 E-Line Circuits (Point-to-Point)
 - MPLS L2 E-LAN Services (Multipoint)
 - MPLS L3 E-LAN/E-Tree Services/IP VPNs
- Integrated Service**
 - Carrier Ethernet End-to-End Service (EVC)
- Edge/CPE Network**
 - NNI Service
 - UNI Service
 - CPE Configuration, VLANs
- Core MPLS**
 - MPLS Traffic Engineered LSPs (RSVP-TE) / TE Tunnels & Named Paths

Service Providers are constantly looking for ways to speed delivery to market without compromising quality. Automation is the only way to effectively accomplish this task. Manual solutions and CLI are labor intensive and error prone which results in lost revenue and customer dissatisfaction. A single system to automate repeatable processes not only makes the fulfillment process significantly quicker but also eliminates costly errors. But it can't stop there. Once services are deployed, customers frequently need to change their service. For example a customer may require more bandwidth, or a different configuration. Redcell allows service providers to react quickly and efficiently to these customer needs. The result is delivering services to the end user faster, and with higher level of quality.

Redcell lets providers deploy and manage their MPLS network or IP service regardless of vendor or device type. Redcell comes out-of-the-box ready to support a wide range of equipment, and with integrated tools, it's easy to customize support for a wider range of vendors and devices. Redcell is also flexible enough to handle any next generation service that will come along, or integrate with other OSS/BSS systems. Redcell extends beyond the edge to provision services out to the CPE equipment providing an entire end-to-end solution... with one system!

Fully Featured COTS

Redcell is the most versatile and fully-featured Customizable Off-the-Shelf (COTS) solution available on the market for integrated multi-vendor flow-through provisioning and service assurance.



Integrated RM&O and SM&O capabilities offer true seamless service creation and fulfillment.

Subscriber's expectations of QoS are high, and if providers are not managing the solution holistically, it will be difficult to guarantee service assurance. Sophisticated monitoring within Redcell lets providers manage their MPLS core network out to their subscriber to quickly identify, isolate, and resolve issues that can impact their service..and quick resolution to network impacts improves customer satisfaction & retention!

Key Features of Redcell Service Management & Operations Suite

Common Interface for All Services

- All Redcell Service Center modules share a common interface to simplify creation, activation, and provisioning of several types of IP services
- Centralizes the creation of templates for service applications

Service Discovery

- Discover the supported services - L2 MPLS VPNs, L3 MPLS VPNs, Named Paths, or Label Switched Paths (LSP)

MPLS

- Define and manage Multi-Protocol Label Switching (MPLS) services such as Label Switched Paths (LSP) and Named Paths

Named Paths

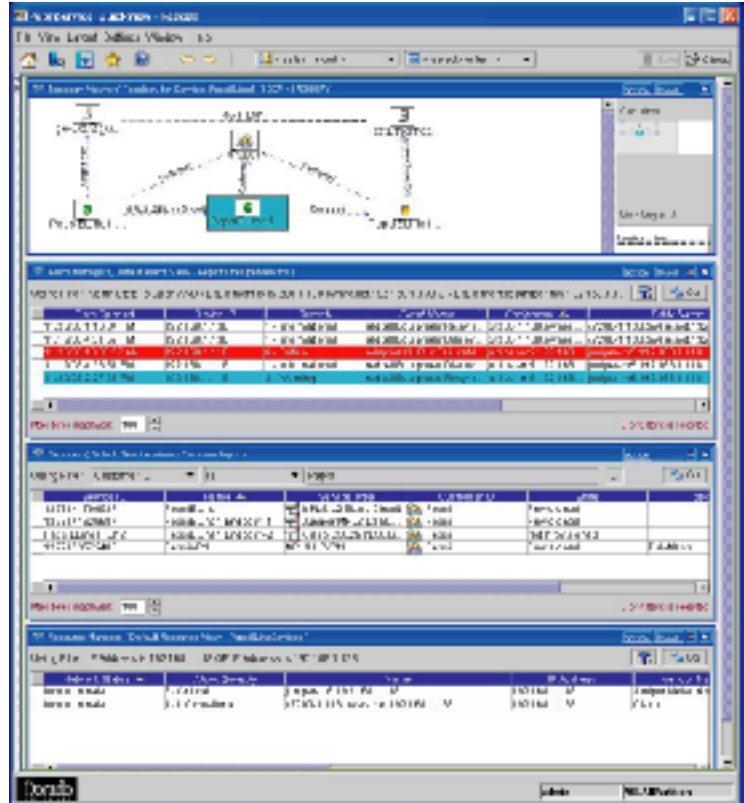
- Define Named Paths to determine the Label Switched Path (LSP) between the ingress and egress Provider Edge routers (PEs)

Label Switched Paths (LSP)

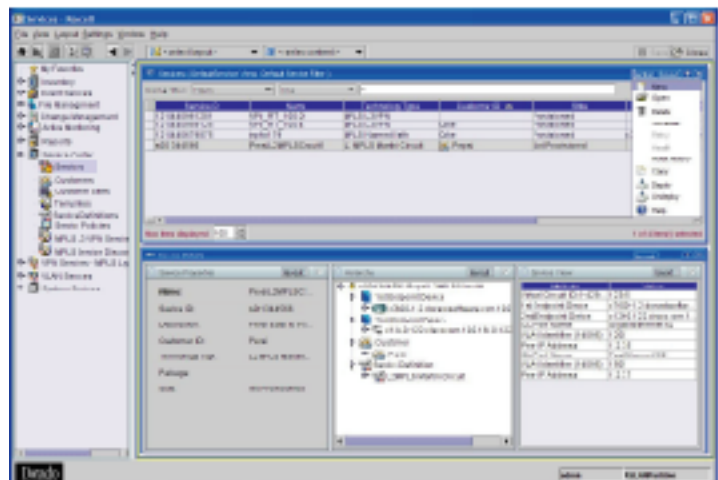
- LSP creation includes a set of parameters that help optimize the route to the egress PE
- Schedule an LSP Status Heartbeat
- MPLS OA&M is provided for LSP service monitoring and diagnostics

L3 MPLS VPN

- Automates network management and supports edge-to-core, multi-vendor, optimized VPN administration
- Simply create and manage L3 VPNs by abstracting the complexities of VPN management for Customer Site and VPN Management
- Define the connectivity-including all associated parameters-between the Customer Edge router and Provider Edge router in the Customer Site Service, and combine sites into a Layer 3 VPN Service



Quick Service Views



Service Inventory for Management and Activation



L2 MPLS/VPLS VPN

- Provides a common user interface for creating, allocating, and provisioning Layer 2 MPLS services, including BGP- and LDP-based MPLS VPNs and BGP- and LDP-based Virtual Private LAN Services

L2 MPLS VPN - BGP Based (Kompella)

- Provision Kompella draft Layer 2 MPLS VPNs that use BGP between PE routers to exchange information about VPN member site.
- Kompella VPNs can be deployed as E-Line, E-LAN or E-Tree topologies

L2 MPLS E-Line Circuit - LDP-Based (Martini)

- Provision LDP E-Line circuits as explicit Point-to-Point connections
- Uses Forward Equivalency Classes (FECs) to classify traffic that is mapped to a specific MPLS LSP

Virtual Private LAN Service (VPLS)

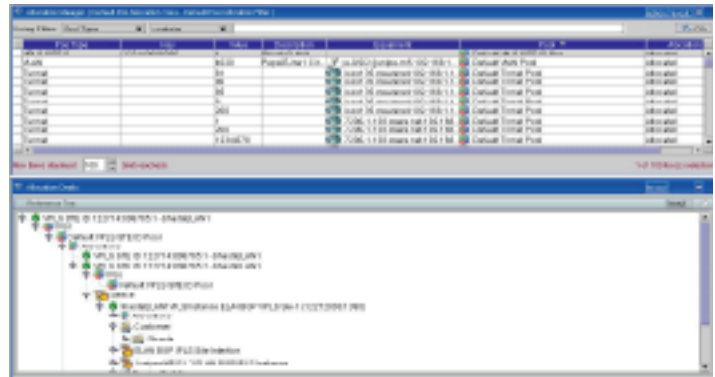
- Define and manage BGP and LDP-based Virtual Private LAN Services.

L2 VPLS - BGP Based (Kompella)

- Provision Kompella draft Layer 2 BGP VPLS E-LAN services.

L2 VPLS - LDP Based (Martini)

- Provision Martini VPLS services, which do not use multi-protocol BGP to discover a VPN's Layer 2 topology.



Service Pooling Management

Service Policy Management

- Graphical interface to configure, manage, and deploy service policies on the network infrastructure.
- Eliminates complex policy deployment and provides a more reliable, repeatable method of implementing policies.
- Define rules and rule templates that govern how to process service or application content within managed environments.
- Select or initiate policies using templates configured by other, sometimes more advanced users.

Service Policy Rule Examples

Access Control Lists (ACLs)

- Packet filtering and apply configurations controlling the traffic forwarding for traffic traversing a Policy Enforcement Point.

Inspection Rules

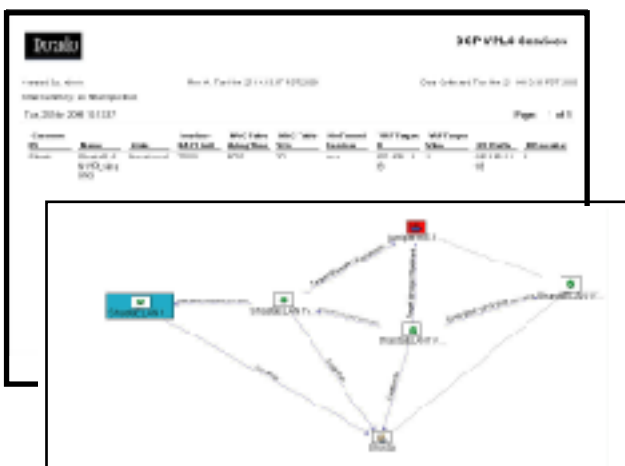
- Perform deep packet inspection – with content rules specific to an application – and control the forwarding or dropping of the specific application traffic.

Class of Service (CoS)

- Remark traffic based upon technology-specific classification schemes (IP Diff Serv, IEE 802.1p priority queues, and so on.)

Quality of Service (QoS)

- Rules that configure traffic queuing and network traffic shaping or Bandwidth Limits.



Service Topology Integrated with Resource Management



Technical Specifications

Interface/Communication Protocols

- SNMP v1/2/3, Proprietary Device CLI, Telnet/SSH, RMI/IOP, XML, WMI/CIMI, Web services, TCP/IP, HTTP/S, UDP Multicast

Multi-technology Management

- Routers, switches, security devices, servers, storage devices

Device Support Examples

- Cisco
- Juniper
- HP
- Avaya
- Ericsson
- Siemens
- Nortel
- Alcatel
- Foundry
- Extreme
- 3Com
- Enterasys

Operating Environments for Installation

- Microsoft Windows 2000, XP, 2003
- Sun Solaris
- Redhat ES Linux v4, v5
- SUSE Linux v9, v10

Database

- MySQL (embedded database)
- Oracle

Integration

- Web services, email gateway, and event forwarding

Standards

- RFC 2283 – BGP4 Extensions
- RFC 2547 – BGP/MPLS VPNs
- RFC 2702 – Requirements for Traffic

Engineering over MPLS

- RFC 3031 – MPLS Architecture
- RFC 3032 – MPLS Label Stack Encoding
- Internet draft draft-ietf-ppvpn-rfc2547bis, BGP/MPLS VPNs
- RFC 1771 – A Border Gateway Protocol 4 (BGP-4)
- RFC 2453 – Routing Information Protocol (RIP) Version 2
- RFC 2328 – Open Shortest Path First (OSPF) Version 2
- BGP VPLS in VPN SC - MPLS v5.1.0

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