



# Fulfillment & Assurance Solution

Dorado provides an end-to-end fulfillment and assurance solution that service providers and network operators can use in dealing with the challenges at various stages in the customer lifecycle. The ability to have all the functionality in one system lets service providers become more mature in their product offering and increase their performance levels while increasing revenues and reducing costs. The end result is a simplified fulfillment and assurance process to help service providers differentiate themselves from other providers.

## Redcell Key Features

### 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

### Assurance

- SNMP/Syslog Fault & Event Monitoring
- Fault & Event Correlation
- Reporting
- Proactive Device/Service Health Monitoring
- Service Diagnostics (OA&M)
- Data Collection & Associated Formulas & 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

For service providers to differentiate themselves they must meet their customers' needs quickly, efficiently and accurately. Providers lose millions of dollars annually because of poor processes during the provisioning process, and partially integrated business and operation support systems force operators into manual and tedious processes such as manual CLI, validation, and data entry. Manual and tedious processes result in slow, error prone provisioning that ultimately reduce efficiencies, upset customers, and impact cost.

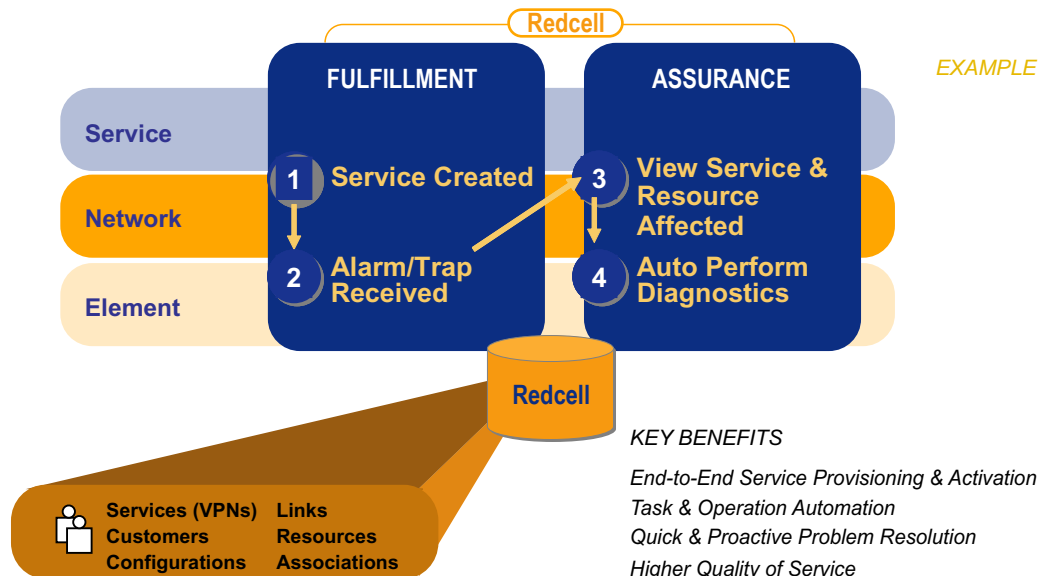
The Redcell Fulfillment Solution lets service providers shorten fulfillment processes and eliminate costly errors caused by manual processes, by deploying a proven solution that is customizable, robust and automated. Service providers can configure and provision orders faster and error free.

Once services are deployed, it is critical that service providers provide the highest quality of service to their customers. To accomplish this task, service providers need a powerful suite of tools to effectively manage their network and the services that are deployed on their network. Redcell's Assurance Solution delivers powerful and flexible tools for service providers to monitor the health of their network and services to ensure the best customer experience.

As all Redcell products are integrated, Redcell offers a true end-to-end fulfillment and service assurance solution.

## Integrated Cross-Stack Solution

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.





**With the combination of event and active performance monitoring, Service Providers have a powerful solution to manage their network and the services they are providing to their customers to guarantee service assurance.**

### **Assurance**

- Flexible suite of tools to monitor network and service health for providing the highest quality of service to differentiate you from other carriers
- Integrated with the entire Redcell Suite to provide a true end-to-end Service Fulfillment and Service Assurance solution

### **Advanced Event & Fault Monitoring**

- Provides keen insight into the health of network and services
- Identify real device and interface issues faster by filtering out event "white noise", improve root cause analysis, and reduce time to repair
- Correlate events so that the correct action is taken
- Easily set up advanced correlations, external notifications, and auto generated scripts with powerful event processing rules
- Take immediate actions when issues occur to reduce or eliminate the impact to your customers
- Alarms are updated graphically, on the element presentation applications and logical topology icons change color with the corresponding alarm severity to provide a visual indication of events and alarms

#### **Key Features:**

- Equipment faults via SNMP and Syslog
- Completely customizable
- Alarm Correlation
- Auto notification rules
- Scripted actions
- Thresholding
- Alarm/Event archive

### **Active Performance Management**

- Advanced monitoring capabilities provide proactive monitoring of both availability and performance
- Immediately identify issues with your network, devices, and services by regularly polling critical health characteristics from multiple sources
- Pre-seeded with monitors for key network and application services, in addition to performance monitors for key network device attributes such as tracking packet loss, uptime, or any number of service related KPI's
- Easily create your own monitors to customize to your environment
- Use collected data to create threshold based alarms, dashboards, and roll up reports

#### **Key Features**

- Scalable deployment
- Multi-threaded polling engine
- Dashboards
- Reporting
- Pre-seeded monitors
  - ICMP
  - SNMP
  - Interface
  - IPSLA
  - Traffic Analyzer/Netflow
  - Key Metric
  - VRF
  - Composite
  - Aggregation

## Key Features of Redcell Fulfillment and Assurance Solution

### Common Interface for All Services

- All Redcell Service Centers 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

### 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 (VPLS)

#### **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 sites.
- 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



## 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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