

# CRUZ OPERATIONS CENTER

## Automate Datacenter and Network Ops for Converging Infrastructures



Powerfully simple and scalable solution to discover, configure, monitor and automate your hybrid cloud and infrastructures including:

- Compute
- Storage
- Network
- Clients
- Virtual
- Mobile
- CPE
- IOT and more!

Managing growing networks and technology changes can be a headache for today's IT organizations. Keeping track of the devices in your environment and how they relate to each other – and to other parts of your infrastructure – can be difficult and time consuming.

*IT is possible* – a single pane-of-glass, easy-to-use and affordable solution to **Automate your Datacenter and Network Ops**

Cruz Operations Center (CruzOC), from Dorado Software, automates datacenter and network operations by managing both physical and virtual interdependent resources that deliver today's cloud and next generation services. With critical hybrid cloud and infrastructure control, operators can improve network and service quality, accelerate network and service deployments, and lower operating costs. Robust, yet easy-to-use, CruzOC offers integrated infrastructure management for disparate IT/IOT resources from multiple vendors, resulting in comprehensive and automated problem resolution from a single pane-of-glass.

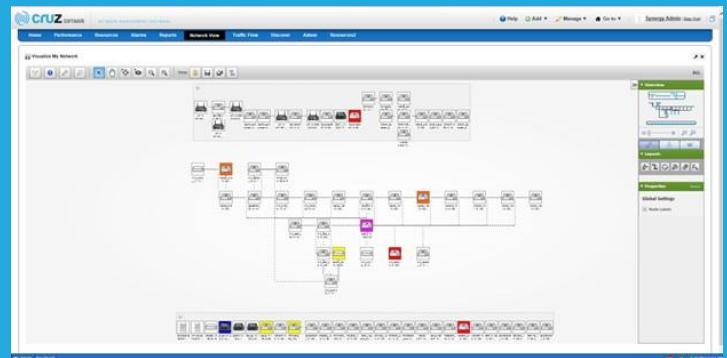
- Automate discovery and provide detailed information on devices and their connectivity and draw physical and logical topology maps.
- Easily configure, standardize, and manage configuration changes, compliance policies, and firmware deployments to multiple devices in one operation — or many operations that can be scheduled for pre-determined times.
- Lower TCO by proactively monitoring the infrastructure health and performance for network problems; automating common configuration actions; managing firmware deployments; and allowing administrators to focus on more critical activities.
- With packages starting at \$1250/year, CruzOC's unique subscription service offers an ultra-affordable way to manage your technology investment.

CruzOC, from Dorado Software, offers converged infrastructure management to quickly configure, monitor and manage all of your devices from a single system. CruzOC is designed to make it easier to plan and manage your multi-vendor, converging environments – including servers, storage, networks and applications. CruzOC's centralized management for datacenter and network operations provides discovery, configuration management, monitoring, and reporting for multi-vendor devices ... right out-of-the-box.

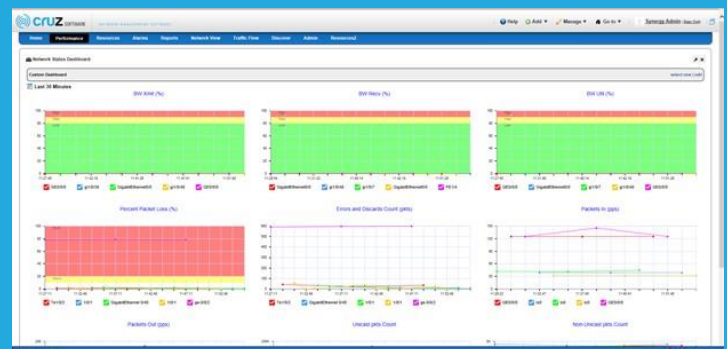
## KEY FEATURES

- Deep Discovery, Inventory, CMDB
- Fault Management/Event Service and Automation
- Configuration File Management
- Change/Compliance Management
- Automated and User Configurable Actions
- Script Management
- Automated Network Topology
- Firmware/OS Management & Deployment
- Group (one-to-many) Operations
- Customer Self-Care (multi-tenancy)
- User Security Management
- Comprehensive Solution Auditing & Logging
- System Self-Management
- Inventory Maintenance
- Multi-Technology/Vendor Support
- 3rd-Party Integration
- Network Operations Collaboration

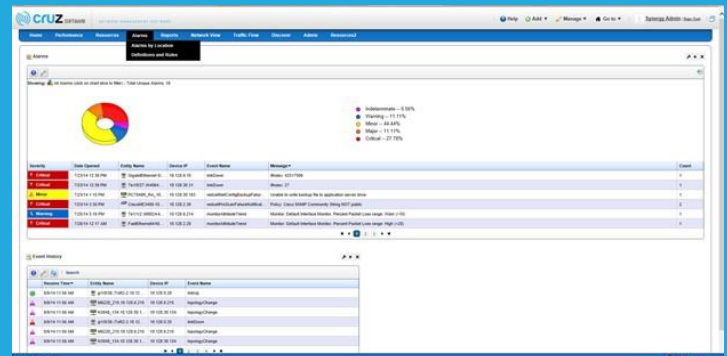
## TOPOLOGY



## PERFORMANCE DASHBOARD



## ALARMS



## RESOURCES

Name	IP Address	Vendor	Model	Firmware Version	Software Version
10.10.10.1	10.10.10.1	Juniper Networks, Inc.	EX4200 Ethernet Switch	10.100	10.100
10.10.10.2	10.10.10.2	Juniper Networks, Inc.	EX4200 Ethernet Switch	10.100	10.100
10.10.10.3	10.10.10.3	Juniper Networks, Inc.	EX4200 Ethernet Switch	10.100	10.100
10.10.10.4	10.10.10.4	Juniper Networks, Inc.	EX4200 Ethernet Switch	10.100	10.100
10.10.10.5	10.10.10.5	Juniper Networks, Inc.	EX4200 Ethernet Switch	10.100	10.100
10.10.10.6	10.10.10.6	Juniper Networks, Inc.	EX4200 Ethernet Switch	10.100	10.100
10.10.10.7	10.10.10.7	Juniper Networks, Inc.	EX4200 Ethernet Switch	10.100	10.100
10.10.10.8	10.10.10.8	Juniper Networks, Inc.	EX4200 Ethernet Switch	10.100	10.100
10.10.10.9	10.10.10.9	Juniper Networks, Inc.	EX4200 Ethernet Switch	10.100	10.100
10.10.10.10	10.10.10.10	Juniper Networks, Inc.	EX4200 Ethernet Switch	10.100	10.100

### Deep Discovery, Inventory, CMDB

- Automated, multi-protocol with centralized credentials management.
- Maintains associations between the managed equipment to show the interdependencies within your network infrastructure.
- Periodically resyncs with the environment to ensure accuracy over time.
- Provides physical device discovery at the chassis, PIC/card and port-level, as well as logical discovery of sub interfaces and links.

### Fault Management/Event Service Automation

- Monitors your multi-vendor network for potential health-affecting conditions via notification and syslog analysis. Escalation policies, using predefined or user-defined criteria, allow notifications via mechanisms such as an Alarm Viewer, email, SMS, and API notifications.
- Automation framework can initiate any system operation, like script-execution, configuration back-ups and or restorations in response to any event.
- Displays dependable and filterable record of all events and alarms for troubleshooting and remediation purposes.
- Heartbeat/ status availability.
- Customizable alarm correlation.

### Configuration File Management

- Template-based configuration file creation, back-up and restoration – on an automated, scheduled or ad hoc basis.
- Visual, color-coded configuration file comparison feature to quickly identify changes.

### Change/Compliance Management

- Quickly detect and report on changes through event-driven or proactive change monitoring.
- Standardize how operators apply changes to the network by using Actions template to enforce standard configuration and compliance policies.
- Event-based configuration change detection.
- Policy-based compliance detection via the compliance feature – pro-active configuration file scanning.
- Compliance scan policies produce audit trails to facilitate troubleshooting.
- Provides comprehensive reporting of configuration changes: meaningful reports on what changed, who made the change, when the change was made, authorization status.

### Actions – Automated and User-defined Configuration

- Configure and archive the results of scripts sent to devices, or use the device's own basic script language, and then configure Perl scripts within Cruz to manage repetitive or conditional communication.
- Pre-seeded with popular scripts that you can modify or execute, then monitor.
- Group and sequence tasks and configure as responses to system events, like alarms or internal notifications for an automated response or to perform automated diagnostics and troubleshooting activities.
- Customizable Actions script using embedded CLI or Perl commands.
- Create Action's to invoke a local or remote executable.
- Use Action to create configuration file templates.
- Create Actions using JSON scripting to interface with other REST capable systems.
- Use Action scripts standardize common configuration operations, reduce input errors and speed-up device configuration tasks. For instance, Control how network operators and admins apply configuration to the network with the use of Action Scripts and/or configuration file templates. Scan the network to confirm compliance and automatically send remediation action to resolve the condition when a compliance policy fails.
- Pre-seeded actions for common device configuration operations as well as "show" actions to directly query a device for information.
- Pre-seeded Actions for CLI monitoring of URLs, TCP Ports, DNS etc.
- Action scripts are dynamically rendered actions as a REST interface for programmatic integration.
- Create Actions as members of event-based automation rules that will execute in response to system events. These can re-configure devices, email notify or run diagnostic commands for troubleshooting activities.

### Script Management

- Use Action Groups to execute multiple scripts sequentially or in parallel.
- Schedule execution if scripts.
- Perl script validation.
- Maintain Script execution history.
- Action Script Auditing tracks who executed, when and from what IP on what devices.
- Data-aging policies manage script execution history.

### Automated Network Topology

- Easily view large environments in a dynamic, highly customizable, and automatic logical topology viewer.
- Model networks to see conditions as and where they occur.
- Map resource geographical locations with multiple zoom levels from continents to neighborhoods.
- Logical topology views let you monitor network devices, expand or drill-in any view with a mouse-click to subcomponents and logical connections.

### Firmware/OS Management & Deployment

- Download and maintain various versions of firmware for all your devices
- Deploy firmware upgrades to devices, or groups of devices

### Group (one-to-many) Management

- Use seeded groups or create static or dynamic groups to manage one-to-many management actions.

### Customer Self-Care (multi-tenancy)

- Let customers administer their own network, within the bounds that you set.
- Administrators create and customize multiple tenant sites that do not interfere with each other, while the master site views all customer networks maintaining ultimate control.

### User Management

- Manage user/user group security settings and their functional permissions within the application.

### Comprehensive Solution Auditing & Logging

- Retains all transactions with devices. The Audit Trail Manager lets you easily revisit these transactions to make troubleshooting easier.
- Export logs in PDF, automate archives in text or XML.

### Flexible Reporting

- Reporting and exporting capabilities can be filtered and customized to accommodate different users.
- Generate groups of reports, optionally with a table of contents, and trend reports displaying multiple assets.
- Create reports using dozens of templates (asset tracking, device subcomponents, network, and device performance, etc.) or easily generate custom reports.
- All reports can be executed manually or on a schedule and the report output can be saved in .pdf, .html, .csv, and other standard formats, and emailed to concerned parties.

### Advanced Scheduling

- Provides an easy-to-use scheduling system to automate task execution in a lights-out environment – you don't have to be near the system.
- Detailed audit records are kept for scheduled task executions.

### System Self-Management

- Automate data-archiving of data-like audit trails, alarms, and performance records to avoid overwhelming your database with unnecessary data.
- System self-monitors its performance and displays the results in dashboards and the Application Server Statistics portlet.

### Inventory Maintenance

- Maintenance and suspension states let you reduce distractions while a known device is offline.
- Track service calls on devices (date, type, technician, comments), and maintain those records in the Redcell database.

### Multi-technology/Vendor

- Single pane-of-glass to support management of your hybrid cloud and network infrastructures: Servers, Routers, Switches, Security Devices, Storage, Appliances.
- Device Support Examples: Cisco, Ruckus, Aerohive, DellEMC, Brocade, Juniper, Netgear, Extreme, Foundry, HPE, F5, Sonicwall, Sonus, Aperi, Avaya, Ericsson, Siemens, Enterasys, Nortel, Alcatel, 3Com and many more.

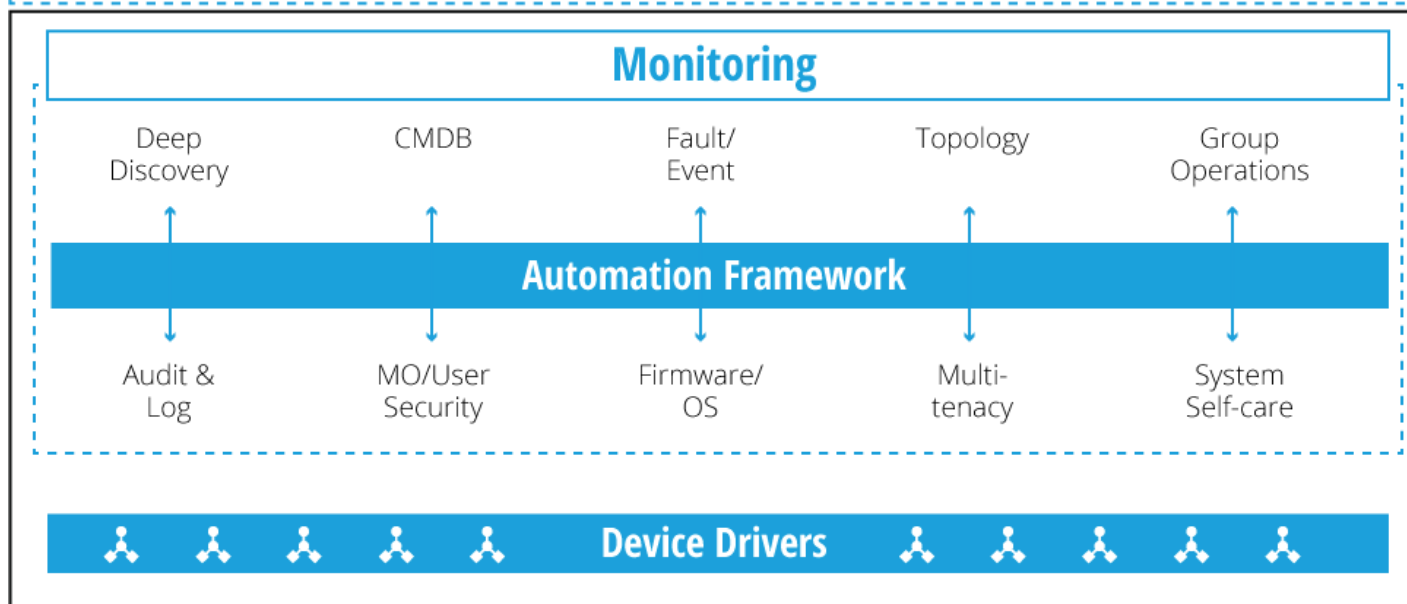
### 3<sup>rd</sup> Party Integration

- Integrate with external systems using various methods including web services, SNMP traps, email notifications, and scripts.

### Network Operations Collaboration

- Build network operational communities across management systems silos so work groups can share information instantly, solve problems quickly, and deliver services faster.
- Different work groups have a truly integrated (and highly customizable) experience to quickly access both vital network and service information from anywhere.

# Collaboration Platform



## ARCHITECTURE

Cruz Operations Center's Automation Framework can initiate any system operation, like script-execution, configuration back-ups and or restorations in response to any event. Built upon a componentized Device Driver (DD) architecture, DDs provide standardized application support protocols and configurations. By simply installing a new driver, Cruz can manage additional devices without needing to upgrade applications. In addition, for those vendors where a driver is not currently available, you can easily create your own drivers with the DD SDK .

Cruz features a graphical user interface based upon standard web portal technologies. This allows for a highly customizable user experience to satisfy customer specific operational procedures, all within a multi-tenant environment.

## PRODUCT OPTIONS

CruzOC has several product options to easily extend your solution for service orchestration, cloud management, traffic flow management, scalability, and key product integrations.

- **CruzControl – Service Orchestration**
- **CruzLog – Next Gen Log Management**
- **Virtualized Resource Manager (MANO)**
- **Advanced Traffic Flow Management (TFA)**
- **High Availability (HA)**
- **Dell OpenManage Essentials Integration (OME)**

## SAMPLE USE CASES

**Edge Management, Campus Wired/Wireless, Remote Office/Branch Office (ROBO)**

## TECHNICAL SPECIFICATIONS

### Interface Support

SNMPv1/v2/v3, Proprietary Device CLI, XML, SSH, WMI, CIM, Web Services API, HTTP/S, RMI/IIOP, XML, TCP/IP, UDP Multicast

### Supported Secure Email Notification Protocols

SSL, TLS

### Database Support

Oracle and MySQL

### EJB Application Server-Based

JBOSS

### Integration/Development Tools

Java, Web  
RESTful Web Services

### Operating Environments

MS Windows, Redhat/Centos Linux, Virtual Appliance

### Web 2.0 Features

Community-based OPENSOCIAL, Wiki Knowledgebase, Activity Tracking, Instant Messaging, Message Boards, Shared Calendar, Conference Rooms