

**Increase Network Flexibility, Availability and Manageability in Virtualized Data Center Environments**

**Reduce Operational Expenses with Network Automation**

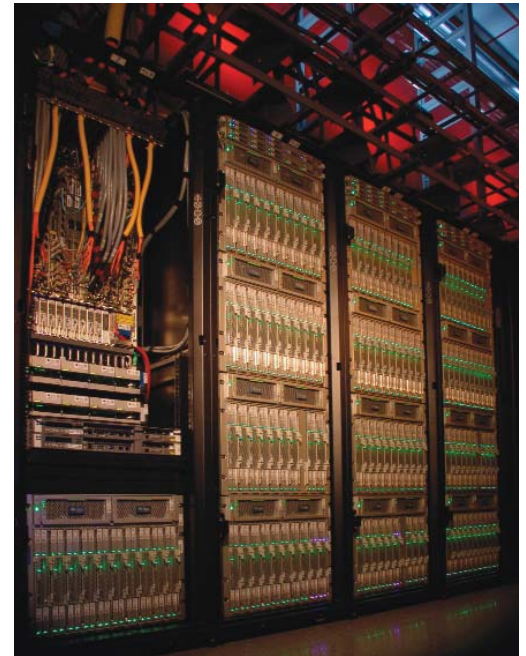
**Ensure Architectural Freedom through Open, Industry Standards-based Approach**

## Enhanced Network Flexibility, Availability and Manageability

Force10's Open Automation framework leads the industry providing an open standards-based automation solution for data center operations. The portfolio offering allows data centers big and small, virtual and conventional, to simplify operations, while increasing operational efficiency and deployment velocity.

### Key Benefits

- Faster network installation and configuration
- Eliminate network switch configuration errors
- Improve manageability and availability with standard configurations
- Enable improved network monitoring
- Enable customized network management
- Enable accelerated network problem identification and resolution
- Reduce operational expenses
- Easy script development
- Automated VLAN provisioning in virtual environments
- Maintain network connectivity and security policies in virtual environments
- Support for VMware vSphere 4.0 and 4.1
- Support for Citrix XenServer 5.6
- Simultaneously support multiple hypervisors
- Support for third party system management tools
- Support Advanced Web GUI access with customizable features and skins
- Community Support via the Dev Exchange portal
- Resource and scripting solutions available via the Script Store

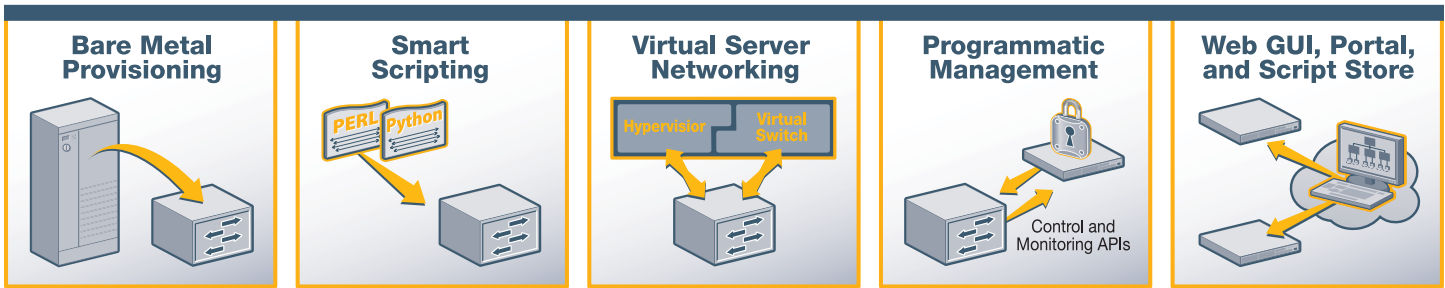


Force10 Open Automation Framework enables network automation in complex data center environments

The Open Automation Framework is comprised of a suite of inter-related network management tools that can be used together or independently. These tools provide data center managers with a complete set of capabilities required in today's dynamic, virtual data center environments:

- **Bare Metal Provisioning** reduces installation time, eliminates configuration errors and enforces standard configurations by automatically configuring network switches.
- **Smart Scripting** improves network monitoring and management with a robust, Perl/Python scripting environment.
- **Virtual Server Networking** increases network flexibility by automatically provisioning VLANs when VMs are migrated.
- **Programmatic Management** simplifies network management by integrating with multiple third party system management tools.
- **Web GUI, Portal and Script Store** increases Web connectivity to platforms via the Extensible Web GUI and the user community via the Dev Exchange portal

# Network Automation: Open Automation Framework



## Bare Metal Provisioning

### Automated Bare Metal Provisioning

Automatic network switch configuration

- Reduce installation time
- Enforce standard configurations
- Eliminate configuration errors
- Simplify OS upgrades

## SmartScripts

### Perl & Python Dynamic Scripting

Perl & Python scripting environment for custom monitoring and management

- Increase network uptime
- Reduce time for problem resolution
- Improve configuration mgmt and auditing

## Virtual Server Networking

Hypervisor – Switch Communications  
Virtual Machine/Virtual LAN interworking, management and provisioning

- Increase data center flexibility
- Maintain network connectivity and security with VM migration
- Reduce OpEx

## Programmatic Management

System Mgmt Orchestration  
Seamless integration with programmatic interfaces and system management tools

- Simplify network management
- Minimize number of management tools
- Reduce OpEx

## Web GUI, Portal and Script Store

Web Portal/Script Store/Control  
Web based system control, Dev and Portal framework, Scripting market

- Extensible Web GUI
- Dev Exchange Portal
- Script Store

## Bare Metal Provisioning

Automated bare metal configuration reduces operational expenses, accelerates switch installation, simplifies OS upgrades and increases network availability by automatically configuring Force10 switches. This eliminates the need for a network administrator to manually configure the switch, resulting in faster installation, elimination of configuration errors and enforcement of standard configurations. Upon installation, the Force10 switch searches the network for a DHCP server. The DHCP server provides the Force10 switch with an IP address and the location of a TFTP server. The TFTP server maintains a configuration file and an approved version of FTOS, the operating system for Force10 switches. The Force10 switch automatically configures itself by loading the configuration file and FTOS.

## Smart Scripting

Smart scripting increases network availability and manageability by allowing network administrators to deploy custom monitoring and management scripts on Force10 switching platforms. With this capability, network administrators can implement version control systems, automatically generate alerts, create custom logging tools and automate management of network devices. Virtually any function that

can be performed through the CLI can be implemented with smart scripting. Smart scripting provides a scripting environment that supports Perl and Python, making it easy for IT administrators to quickly develop scripts without having to learn a new scripting language.

## Virtual Server Networking

Virtual environments require network infrastructure to be dynamic in order to ensure network connectivity and security policies are maintained when VMs are migrated. Virtual server networking facilitates communications between Force10 network switches and virtual machine management software to orchestrate automated VM/VLAN provisioning and virtual machine migration. This is a powerful capability that greatly simplifies the many of the tasks associated with virtualized computing environments. Our virtual server networking software supports VMware vSphere 4.0/4.1 and Citrix XenServer 5.6.

## Programmatic Management

Programmatic management greatly improves network manageability by allowing Force10 network devices to be managed by third party system management tools via standard programmatic interfaces. The programmatic management environment and set of interfaces

communicate directly with third-party system management tools, avoiding the need for a dedicated network management tool.

## Web GUI, Portal & Script Store

Ease and breadth of connectivity remains a paramount necessity for both equipment and development communities. The Web GUI, portal and script store address Web connectivity in general and encompasses two distinct elements: an advanced Web GUI and the OA Dev Exchange Portal. The advanced Web GUI is a significant step up from traditional web-based switching platforms interfaces. Retrieval and update of switch attributes and characteristics are present, but further, the ability to drag and drop changes to the GUI to provide customized skins allow for a level of customization and functionality not previously seen in a tool of this nature. Complementing this, the OA Dev Exchange portal ([oadevexchange.com](http://oadevexchange.com)) provides an outlet for full user community interaction, development idea exchange and a script store where scripting products can be sold and development resources can be arranged and contracted.

# Network Automation: Open Automation Framework

## Avoid Vendor Lock-in

The Open Automation Framework provides IT managers the flexibility to deploy network automation without vendor lock-in. By supporting industry standards and developing a strong eco-system of technology partners, Force10 gives IT managers the choice to select hypervisor and system management technology partners that best meet their needs.

## Specifications

### SmartScripts

Perl  
Python

### HyperLink

VMware 4.0, 4.1  
Citrix XenServer 5.6

### SwitchLink

XML  
HP Network Automation software

### OpenConnect

oadevexchange.com



**Force10 Networks, Inc.**  
350 Holger Way  
San Jose, CA 95134 USA  
[www.force10networks.com](http://www.force10networks.com)

408-571-3500 PHONE  
408-571-3550 FACSIMILE

© 2011 Force10 Networks, Inc. All rights reserved. Force10 Networks, the Force10 Networks logo, Force10, C-Series, E-Series, Traverse, and TraverseEdge are registered trademarks and ExaScale, FTOS, JumpStart, Open Automation, Open Cloud Networking, S-Series, ScriptStore, SmartScripts, SwitchLink, TeraScale, HyperLink, Z-Series, and ZettaScale are trademarks of Force10 Networks, Inc. All other company names are trademarks of their respective holders. Information in this document is subject to change without notice. Certain features may not yet be generally available. Force10 Networks, Inc. assumes no responsibility for any errors that may appear in this document.

OADS01

711 v1.6