

The Six Things You Need for More Efficient Network Management

Does your network management solution easily adapt to change or are you afraid to touch it for fear that something will break? Are you worried about the growing effort it takes just to keep your network management system alive? If so, you need a new network management system, one that is extensible, agile, efficient, and scalable. This white paper explains why network management architecture makes all the difference for improving operational efficiency and lowering total cost of ownership. It also discusses how Entuity's unique architecture is specifically designed to handle the demands of today's rapidly changing networks.



- ✔ All-in-One Solution
- ✔ Federated Architecture
- ✔ Uniform Data Schema
- ✔ Extensible Processing Engine
- ✔ Central License Server/
Flexible Pricing
- ✔ Virtualized Network
Management

Overview

These days, you can't run a business without a network. Your most important activities—sales, email, business automation—you name it, depend on it, and you've taken steps to protect them by investing in a network management system.

But of course, pressure on the network to quickly adapt to new technologies is only increasing the network's complexity and the effort it takes to manage it.

The problem is most of today's enterprise solutions were not architected to easily adapt to rapidly changing technologies and business demands. These solutions consist of many disparate, loosely connected products, with differing requirements and many dependencies, making them complex, fragile and an endless drain on resources.

Eventually, a "bolted together" network management solution will stifle agility and productivity and increase operational costs just to keep it functioning. Ask yourself these questions:

- ✔ Does the thought of expanding your network or adding technologies scare you because it may all fall apart like a "house of cards" either because of scale or new technology?

- ✔ Are you worried about the growing effort it takes just to keep your network management system alive?

If you answered yes to either of the above, you need a new network management system, one with an extensible, agile, efficient, and scalable architecture consisting of these key elements:

- ✔ All-in-one solution with all core network management functionality embedded in one software product
- ✔ Uniform federated architecture that's highly automated, extensible, easily scalable and hides complexity
- ✔ Uniform data schema across servers, extensive reporting capabilities, and easy data export to other applications
- ✔ Extensible, agile processing engine that's data, vendor, and technology agnostic and rapidly accommodates new technologies
- ✔ Central license server and flexible cost structure that adapts to your business model
- ✔ Virtualized network management server for taking advantage of virtual environments

The rest of this paper discusses the Entuity network management solution and how it incorporates each of these elements to meet the demands of today's networks. It also includes a brief discussion of Entuity's integration approach.

All-in-One Network Management

Entuity is efficient by design. It's not a collection of products bolted together—it's a unified solution with all the core functionality you need to run the network in a lot less time. Entuity creates a layer of abstraction between users and the underlying architecture, shielding them from the complexities of managing servers, interconnections, and databases for a virtual view of the network.

Unlike other solutions that require installing, integrating, and managing multiple products, Entuity all-in-one network management includes everything you need to manage your network with ease and peak efficiency, including:

- ✔ Auto Discovery and Inventory
- ✔ Live Topology
- ✔ Events Management
- ✔ Root Cause Analysis
- ✔ Configuration Management and Monitoring
- ✔ Seamless and Massive Scalability
- ✔ Elemental Performance
- ✔ Integrated Application Flow
- ✔ Customizable Reporting/Dashboards
- ✔ Integrated Virtual/Physical Management
- ✔ Cloud Support

There is no need to integrate the various functions or to reintegrate them on upgrade. Each part, including an embedded database, is built to work with all of the others straight out of the box. This makes it easy to install, customize, operate, and maintain, and lowers total cost of ownership to a fraction of other network management products. And, similar to master data management, these functions share a common set of data, leading to minimal duplication, increased performance and scalability, seamless integration between all features, and deep insight about the network.

Uniform Federated Architecture

Entuity all-in-one network management is built on an extensible, peer-to-peer federated architecture. All of Entuity's core functions have identical demands of and connections to the underlying architecture. This allows scaling to be done simply by adding instances of the all-in-one server.

Each server is responsible for all of the monitoring for a portion of the network, and interfacing of the servers is transparent to administrators and users. Servers communicate with each other to coordinate division of labor for service delivery. An embedded database at each server means that data is collected and stored locally instead of having data storage and processing concentrated at a centralized database, which would introduce a bottleneck and a single point of failure, as with some other solutions.

Uniform Data Schema

A network management system is only as good as the data it collects and exposes, and its effectiveness at turning that data into actionable insight. If the data is organized differently by each product (for example, at

different time intervals), it is extremely difficult or impossible to correlate it in a meaningful way. That's because the data is fragmented and requires labor-intensive integration efforts to build a complete picture of what's happening on the network. In addition, changes to a node must be manually input to each product individually.

Some vendors claim to offer a top-level consolidation; however, these tend to be "alt-tab" approaches, and each underlying product still has its own server, database, administration, and scalability requirements. The "consolidation" layer requires yet another integration to take advantage of the data, thereby adding to the complexity.

The data schema of each database embedded in Entuity servers is identical, which allows for distributed data processing and optimized I/O load across Entuity servers, while simultaneously presenting multiple databases as one logical, global database that administrators and users can automatically access from any server. By distributing the workload, Entuity improves I/O and scalability and delivers timely, accurate data.

A wide variety of out-of-the-box reports and dashboards within the product allow for comprehensive data analysis. Reports and dashboards can also be output in many different formats suitable for viewing in various desktop applications, such as Microsoft Word and Excel. In addition, Entuity supports customized report creation.

Extensible, Agile Processing Engine

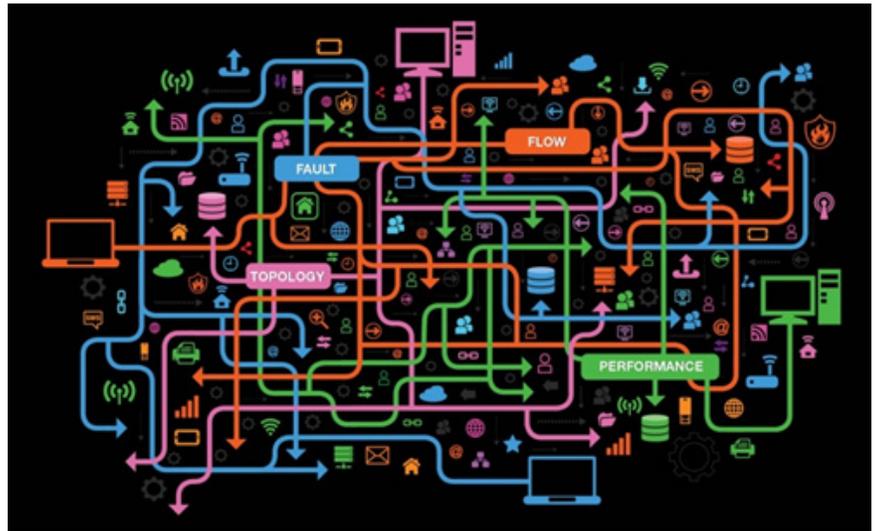
Like the architecture, architectural elements must also be agile to enable fast response to change. Legacy network management solutions, which generally require hard coding changes to

Understanding Legacy Network Management Architectures

Legacy network management solutions consist of multiple unintegrated or loosely integrated products, each of which covers one core discipline, such as topology, flow, performance, or fault. These are generally collections of partial solutions that began as single products and were acquired over time. Used together, they become a fragile system requiring intensive resources to manage, maintain, and scale. The various pieces must be integrated and then continually reintegrated to keep them in sync.

The integrations between the products are often only surface-level, allowing for little, if any, intelligence, for example, cross-functional cooperation or sharing of data. Instead, many simply launch another feature in a fire-and-forget fashion, potentially passing context information, at best, as they go.

And while some vendors may claim to offer a consolidation layer (or a "single pane of glass"), these are generally "alt-tab" style approaches, and each product still has its own server, database, administration, and scalability requirements. For example, extending network coverage still requires scaling each solution individually. Adding new devices in one system, such as fault, may be very different from adding them to topology or performance. The consolidation layer simply adds to this complexity because it is yet another piece that must be integrated and separately maintained.



Legacy network management solutions consist of multiple loosely integrated products, each covering one core discipline, such as topology, flow, performance, or fault. A so-called consolidation layer only adds complexity to an already hard-to-manage system.

data models, are not built to rapidly adapt. Entuity's extensible processing engine is designed to integrate new classes of infrastructure entities into the Entuity management environment. This enables Entuity to define object models upon a customer's request and to quickly add support for the desired technologies.

Entuity is also capable of polling networks and gathering network inventory, topology, fault, and performance information for physical and virtual devices using a variety of methods. These methods include SNMP, syslog, LLDP, SONMP, flow, QoS, IP SLA (DHCP, UDP, ICMP, HTTP, and Jitter), SOAP web services and XML, and other APIs to extract management data from other application managers, such as Cisco Unified Call Manager, VMware vCenter Server, and Oracle VM Manager.

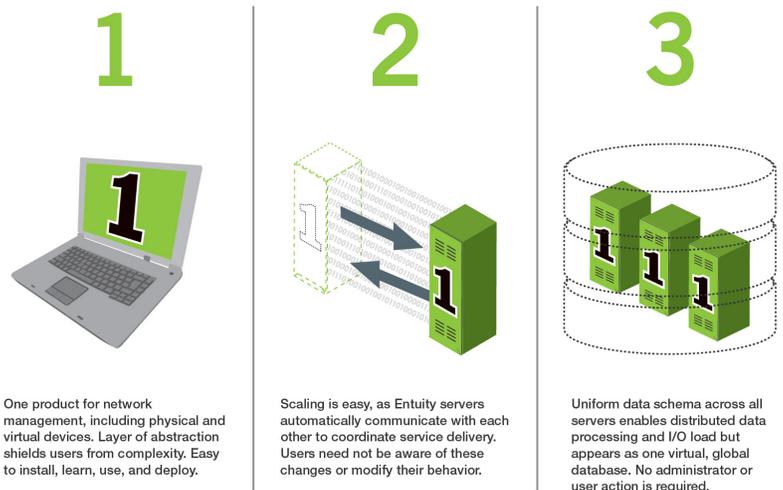
Entuity's data core detects modules, ports, and incoming and outgoing connections and automatically updates the database. Data, vendor, and technology agnostic, Entuity can be applied to any IT environment, making it readily adaptable to next-generation technologies and long-term strategic approaches to managing IT environments. Functional modules can easily be added to the core architecture through license keys, eliminating the overhead required by multi-product solutions.

Central License Server and Flexible Pricing

Licensing using legacy network management systems can be a frustrating and cumbersome task in enterprise environments, involving the coordination of many different products, databases, and devices. Depending on your requirements, it can also be very expensive due to inflexible pricing structures of legacy solutions, which require huge upfront costs for licensing. The process becomes even more difficult as you scale the network.

Entuity makes it as easy as possible for busy network managers by eliminating time-consuming licensing details. Entuity's distributed licensing model offers a simple, dynamic, scalable way to allocate licenses among servers and to use those licenses where and when they're needed. And, with the most flexible pricing structure in the industry, Entuity lets businesses choose the model that works best for them, including device-based, object-based, perpetual licensing, or subscription-based licensing.

Entuity Network Management



One product for network management, including physical and virtual devices. Layer of abstraction shields users from complexity. Easy to install, learn, use, and deploy.

Scaling is easy, as Entuity servers automatically communicate with each other to coordinate service delivery. Users need not be aware of these changes or modify their behavior.

Uniform data schema across all servers enables distributed data processing and I/O load but appears as one virtual, global database. No administrator or user action is required.

Overall, Entuity's licensing and pricing approaches let you balance between capital and operational expenses and allow the network management system to evolve in pace with the business. If an option is missing from our model, we'll work with you to find one that suits your business.

Virtualized Network Management Server

Many businesses that depend on High Availability (HA) of their IT infrastructures put processes in place to ensure minimal down time of their network management systems.

Some vendors require physical appliances and physical servers for management functionality, which is much harder to change and deploy. Capital equipment costs are also higher when dedicated physical hardware is needed. Virtualized Entuity servers allow for rapid deployment, as well as virtual load balancing and failover through VMware vMotion to deliver the most reliable and cost effective means of ensuring continuous availability.

The benefits of using Entuity in a virtualized environment include less expensive provisioning, as Entuity can be deployed more cost effectively on virtualized hardware, thus getting the most from existing capabilities and investments. Virtualized servers and server duplication also improve agility by enabling load balancing and relocation to occur very quickly. Finally, virtual failover allows failover to happen rapidly and automatically with little to no disruption to polling cycles.

About Entuity Integrations

At Entuity we believe that the data we collect belongs to our customers, so we make it as simple as possible to share data within the larger context that they are working in. Entuity is the only network management company to enable customers to pull out all of the data collected by Entuity into any application of their choice. We export our entire database to MySQL or MariaDB and readily integrate with other tools and products to address each organization's distinct business and IT environments. And we do all of this without causing more work or requiring expensive service consultants to address integration shortfalls.

A number of Application Programming Interfaces (APIs) comprise Entuity's Integration Strategy and Toolkit. These APIs make it easy for customers to integrate Entuity reports, analytics, and data into those tools and

solutions they need to effectively manage their networks, such as managers of managers (MOMs), dashboards, and more. The various APIs differ in the amount and types of data that are exposed for subsequent processing, but all of them are designed to augment and support precise and accurate network analytics across all devices from one end of the network to the other.

Entuity and Virtualization

Entuity brings to enterprise networks many of the benefits of virtualization realized by managed service and cloud providers, including:

Transparency: Server interfacing, communication, and service delivery are simplified—no need to touch physical servers or databases. Distributed workload gives access to one logical, global view of the network.

Virtual failover: Support for VMware vMotion adds agility by providing virtual failover with no disruption to users or polling cycles.

Virtual load balancing: Virtual load balancing allows for rapid server relocation if additional power or capacity is needed.

Fast, easy scalability: Simply add additional instances of Entuity all-in-one servers, which coordinate division of labor for service delivery.

Lower TCO: Virtualization reduces high capital equipment costs associated with using dedicated physical appliances and physical servers, which are much harder to change and deploy.



Entuity integrates with key industry platforms, including BMC (Atrium CMDB, BPPM, BNA, BCO, and Remedy AR), Oracle Enterprise Manager, HP, and IBM, as well as with help desk systems, performance management systems, and more.

Big Picture

Legacy network management systems comprising multiple, disparate products that evolved from multiple, disparate point solutions are not architected to handle the flood of new demands placed on today's networks without overtaxing human and capital resources. As the pace of technological change continues to accelerate and as networks continue to grow and be stressed, there will come a point when those who have invested in these systems will need to replace them with a network management solution that is designed to handle modern networks.

Entuity is efficient by design—built to dramatically reduce the complexity of network management. It's extensible, agile, and unified architecture enables change to accommodate growth, offers massive scalability, and easily integrates with the larger IT environment. By shielding network administrators and users from the underlying architecture, Entuity simplifies management, dramatically increases operational efficiency, and lowers total cost of ownership.

Entuity Benefits for Service Providers

Managed Service Providers (MSPs) and cloud providers rely on their networks to generate revenue through a broad range of business services to customers having very different needs. This makes the challenges of rapidly changing IT environments particularly complex as providers need to deliver more value than traditional IT organizations in an operationally efficient way to ensure profitability. Entuity's advanced architecture delivers the agility, extensibility, and scalability that service providers need to:

Improve device management: Gives greater control of customer environments and saves on licensing costs by letting providers easily manage and un-manage devices and sub devices. Also provides heterogeneous device support, including a wide range of legacy devices.

Achieve granular pricing and licensing control: Distributed licensing allows for allocating licenses exactly where needed. Flexible licensing structure includes device, object, perpetual, subscription-based, or customized licensing. Ability to un-manage ports means you pay for only what you manage.

Implement Multitenancy: Allows providers to co-locate customers on the same servers and devices while enabling role-based access to customers, who see only their specific services.

Improve price quotes: Automatic discovery of all monitored devices on a network enables quick and accurate identification of the IT infrastructure and, in turn, improves the accuracy of price quotes.

Demonstrate service delivery: Detailed reports demonstrate achievement of SLA targets. Option to let customers monitor their services through Entuity in real-time allows them to report problems as they happen. Customized reporting offers service providers new revenue opportunities.

Expand quickly and efficiently: Entuity delivers class-leading per-server capacity. Scaling is a straightforward matter of adding and linking additional all-in-one servers. It is nearly unlimited and transparent to users.

Strengthen competitive positioning with new service offerings: Entuity's extensible processing engine enables the fast addition of new devices to support rapid roll out of attractive new services.

Protect premium level customers: Entuity continually monitors the network infrastructure for impacts on business services. This enables proper prioritization of troubleshooting and repair efforts to ensure that premium service customers are least affected.

ABOUT ENTUITY

Entuity takes the work out of network management. Our highly automated, unified enterprise-class solution puts deep network insight at your fingertips, frees IT staff to focus on strategic projects and easily integrates with major frameworks and networking environments. Entuity's support and service teams are frequently praised for their rapid response, networking expertise and involvement in special engagements. Founded in 1997 by two senior-level IT executives from the financial industry, Entuity is headquartered in London with US operations in Boston. For more information, visit entuity.com.



entuity.com