



# Dell EMC Validated Designs for Splunk

Harness machine data with simplified deployment of optimized solutions that scale with ease.

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## Data, data everywhere

Machine data is one of the fastest-growing and complex areas of big data. It contains a definitive record of events that can reveal information about transactions, customer behavior, machine behavior, security threats, fraudulent activity and more. Making use of this data, however, presents real challenges. Traditional analytics solutions are not engineered to handle this high-volume, high-velocity and highly diverse data.

Splunk® Enterprise is an industry-leading software for machine analytics. It's the easy, fast and secure way to search, analyze and visualize the massive streams of machine data generated by IT infrastructure, business applications, computers, mobile phones, embedded systems and other networked devices — physical, virtual and in the cloud — helping you deliver real-time visibility across the entire business. However, but many organizations find it complex and time-consuming to architect, test and tune hardware for Splunk.

“Our partnership with Dell Technologies allows us to take advantage of the full breadth and depth of their compute, storage, networking and security solutions.”

— David J. Brzozowski Jr,  
Chief Technology Officer,  
Medacis<sup>1</sup>

## Dell Technologies has what you need.

### Expertise and guidance

Technology is evolving quickly, so your team may not have time to design, deploy and manage solution stacks optimized for Splunk. While advanced analytics and artificial intelligence (AI) might seem like the latest IT trend, Dell Technologies has been a leader in the advanced computing space for over a decade, with proven products, solutions and expertise. Dell Technologies has a team of analytics, AI and high performance computing (HPC) experts dedicated to staying on the cutting edge, testing new technologies and tuning solutions to your applications to help you keep pace with this constantly evolving landscape.

### Dell EMC Validated Designs for Analytics

The data-driven age is dramatically reshaping industries and reinventing the future. Leveraging vast amounts of data from diverse sources is both critical and transformational. Mastering analytics holds tremendous potential for dramatically growing revenue and controlling costs. But it's often difficult know where to begin. That's where Dell Technologies can help. Validated Designs for Analytics can help unlock the value of data. The breadth of the Dell Technologies portfolio makes it easy to find a solution that's right for where you are on your analytics journey. And, together with our partners, Dell Technologies also offers consulting, deployment, support and education services for analytics.

### Solutions customized for your environment

Dell Technologies uniquely provides an extensive portfolio of technologies to deliver the advanced computing solutions that underpin successful analytics, AI and HPC implementations. With years of experience and an ecosystem of curated technology and service partners, Dell Technologies provides innovative solutions, workstations, servers, networking, storage and services that reduce complexity and enable you to capitalize on a universe of data.

<sup>1</sup> Dell Technologies case study, [Medacis Advances Healthcare Analytics with AI running on Dell EMC PowerEdge and PowerScale](#), January 2021.

## Splunk use cases

Splunk simplifies collecting, analyzing and acting on the untapped value of machine data generated by infrastructure, security solutions and business applications, giving you more insights to drive operational performance and business results. The following are some of the more common use cases for Splunk.

<b>Application delivery</b>	Splunk helps developers deliver applications faster with a positive user experience. It spans silos to collect, index and analyze the machine data that provides insight into application availability, performance and use. As a result, DevOps organizations can deliver faster releases, operations teams can reduce mean time to resolution (MTTR), and development teams can optimize application quality, performance and costs.
<b>Business analytics</b>	Splunk software analyzes, visualizes and monitors machine data from any source — such as applications, mobile devices and servers — to provide insights to IT and business operations on-premises and in the cloud. Delivering these enhanced business insights in real time to executives, sales, product, marketing, operations and customer service teams can help transform you into a market leader.
<b>Cloud</b>	Splunk enables centralized visibility across cloud, on-premises and hybrid environments, so you can leverage cloud with the security, visibility and assurance you require. Whether you're managing applications, infrastructure or security operations in the cloud, Splunk delivers operational intelligence for a real-time understanding of what's happening across the business and IT, so you can make better-informed decisions.
<b>Internet of Things (IoT)</b>	Splunk software ingests, analyzes and visualizes real-time and historical machine data from any source — including industrial control systems and connected devices — enabling you to improve operations, enhance safety and compliance, perform predictive maintenance, and better manage the uptime and availability of industrial assets.
<b>IT operations</b>	Splunk collects and correlates machine data so you can quickly troubleshoot issues and outages, monitor service levels and detect anomalies. Splunk can help reduce MTTR, lower monitoring costs, improve uptime and support strategic initiatives, such as data center optimization and tool consolidation.
<b>Log management</b>	Splunk can consolidate and index log and machine data, including structured, unstructured and complex multi-line application logs. You can collect, store, index, search, correlate, visualize, analyze and report on any machine-generated data to identify and resolve operational and security issues in a faster, repeatable and more affordable way.
<b>Security and fraud detection</b>	Splunk enables collaboration and implementation of best practices to address modern cyberthreat challenges. With Splunk as a nerve center, security teams can leverage statistical, visual, behavioral and exploratory analytics to drive insights, decisions and actions.

## Do any of these challenges sound familiar?

“We could benefit from machine data — but don't know how to get a handle on it.”

Machine data is the largest and fastest-growing section of data. Every second of every day, hundreds to thousands of devices capture what's happening in your business, with records coming in an array of unpredictable formats. Dell EMC Validated Designs for Splunk combine the power of Splunk with Dell EMC infrastructure to make machine data accessible, usable and valuable to everyone, with simplicity and scalability.

“Deploying infrastructure for Splunk can be complex and time-consuming.”

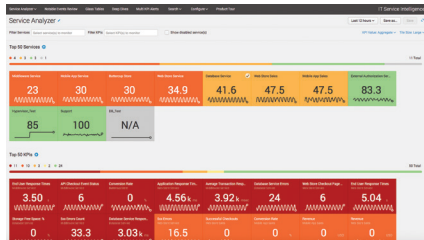
One of the main benefits of Splunk is advanced functionality for a variety of well-defined use cases right out of the box. However, who wants to spend weeks and months architecting, deploying and tuning the underlying infrastructure? Tested and tuned Dell EMC Validated Designs for Splunk reduce the time, effort and resources required to architect and build a Splunk solution. In fact, Dell Technologies is one of the only partners to offer Splunk-validated solutions.

“It's hard to anticipate what our future needs will be for Splunk.”

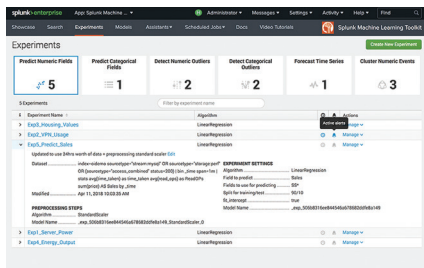
Many organizations find that once they use Splunk for one use case, they want to add more. In addition, data sets keep growing exponentially, with no end in sight. Dell EMC Validated Designs for Splunk address your current and future needs by offering flexible solutions that allow you to scale compute and storage independently.

## Dell EMC Validated Designs for Splunk

With Splunk Enterprise, you can analyze and ask questions of data from any source to get the insights you need. Splunk offers AI solutions that provide applied machine learning (ML) to get value from all of this data, through packaged or custom ML options, as well as platform capabilities to help you achieve fast time to value with your ML initiatives.



Splunk IT Service Intelligence



Splunk Machine Learning Toolkit

“[Dell Technologies] solved our data lake challenge... This gave us the power and throughput we needed, while reducing physical storage by two-thirds. We also didn’t have to retrain our IT team to deal with bare metal.”

— Barry Carter,  
Chief Information Officer,  
RealPage<sup>2</sup>

Data wrangling is one of the most difficult, time-intensive steps in getting value from ML. This is one of Splunk’s strengths — handling data prep and addressing problems with the data set so that you can focus your time on using ML to make decisions and avoid bigger problems later on. Splunk’s software platform approach provides the ability to prep the data without the need to move it for analysis.

Splunk IT Service Intelligence and Splunk User Behavior Analytics are pre-built, use case-specific solutions that leverage packaged ML via advanced adaptive thresholding and anomaly detection techniques, helping you proactively detect incidents, reduce resolution times, and predict and prevent undesired outcomes, without the need for a data scientist.

The Splunk Machine Learning Toolkit (MLTK), a free app available on [Splunkbase](#), enables custom ML for any use case on the Splunk platform. It provides a guided workbench for creating, testing and deploying models, and includes commonly used ML algorithms that can be applied to the data. In addition, the MLTK provides an extensible API for developers to import any ML algorithms (proprietary or open source) and operationalize them as a Splunk dashboard, alert or report.

Splunk provides a range of options for getting value from your data, with solutions that are packaged for less advanced users, as well as those that are more customizable for advanced users. The result is a single software platform that is both easy to use yet flexible enough to be customizable.

### Leverage solutions built for Splunk

Dell Technologies and Splunk partner to make adopting Splunk simpler, by engineering a portfolio of purpose-built solutions with non-disruptive scalability and performance optimized for Splunk workloads. Together, Dell Technologies and Splunk enable you to harness the power of machine analytics with simplified deployment and scalability.

#### Harness machine data.

Splunk makes it simple to collect, analyze and act upon the untapped value of the data generated by infrastructure, security solutions and business applications, for insights that help drive operational performance and business results. Dell EMC Validated Designs for Splunk are purpose-built for the needs of Splunk, helping consolidate, simplify and protect machine data.

#### Simplify deployment.

Maintaining consistent performance — so you get fast query and search capabilities from Splunk — requires a thoughtful approach to infrastructure design. Dell EMC Validated Designs for Splunk have been tested and tuned with Splunk software to optimize your Splunk deployment.

#### Scale with ease.

Splunk scales easily from a single focused use case to an enterprise-wide analytics backbone. Dell EMC Validated Designs for Splunk are designed from the start to dynamically fit your current and future needs. When it’s time to grow, you can scale without interrupting Splunk operations.

<sup>2</sup> Dell Technologies case study, [RealPage Boosts Property Management Performance and Results with Data Analytics](#), July 2019.

“Using Dell EMC PowerEdge servers, we are able to increase our platform capacity in a matter of weeks versus a matter of months.”

— Jun Chen, Senior Vice President of Technology Services, Epsilon<sup>3</sup>

### Analytics customer success stories

Medacis<sup>®</sup>

**5 minutes**

instead of 24 hours for delivering analytics results

**Millions of dollars**

in savings due to upholding 99.99% uptime service-level agreements

**13% savings**

using Dell EMC PowerEdge for a Hadoop cluster running AI

Read the case study: [Medacis Advances Healthcare Analytics with AI running on Dell EMC PowerEdge and PowerScale](#).

RealPage<sup>®</sup>

**5.3 billion**

transactions handled daily

**33% fewer**

servers required

**2/3 less**

physical storage required

Read the case study: [RealPage Boosts Property Management Performance and Results with Data Analytics](#).

- [The University of Cambridge UK Science Cloud](#) uses Dell EMC PowerEdge to expand the boundaries of artificial intelligence (AI).
- [Mastercard<sup>®</sup>](#) applies 1.9 million rules to 165 million transactions per hour in a matter of milliseconds.
- [Epsilon<sup>®</sup>](#) sends billions of emails daily, with campaign adjustments in real time.

Read more [customer stories](#).

<sup>3</sup> Dell Technologies case study, [Epsilon](#), accessed February 2021.



## Technical specifications

### Validated Designs for Splunk

Dell Technologies offers Validated Designs for Splunk with flexible configuration options so you can choose the right solution for your needs.

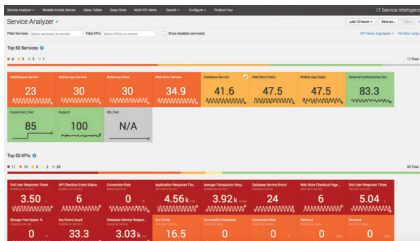
#### Splunk Enterprise on Dell EMC Infrastructure

Turn machine data into actionable business insights with a high-performance, scalable analytics platform.

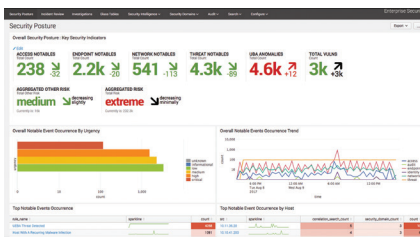
While machine data is one of the fastest-growing sources of data, it's often one of the most underused. Splunk Enterprise software unlocks data from applications, devices, networks, IoT sensors, web traffic and so on. It enables you to search, analyze and visualize massive streams of machine data to deliver real-time visibility across the entire business. But many organizations find it complex and time-consuming to design, architect, test and validate hardware configurations for Splunk. Validated Designs for Splunk Enterprise reduce IT risk and speed time to deployment of optimized Splunk architectures, providing a feature-rich, extensible, high-performance solution that scales to needs now and in the future.

Configuration options			
	Dell EMC PowerEdge	Dell EMC VxRail	Dell EMC PowerFlex
<b>Compute</b>	<ul style="list-style-type: none"> <li>• R640</li> <li>• R740xd</li> </ul>	E560	R640
<b>Networking</b>	Dell EMC PowerSwitch <ul style="list-style-type: none"> <li>• S418F-ON</li> <li>• S3048-ON</li> </ul>	4x 10GbE SFP+ per node	25GbE Cisco® Nexus®
<b>Storage</b>	2x 480GB SSD SAS mixed use 12Gbps RAID 1	Dell EMC PowerScale Isilon X410	Isilon A200
<b>Software</b>	<ul style="list-style-type: none"> <li>• Splunk Enterprise</li> <li>• Splunk Universal Forwarder</li> <li>• Red Hat® Enterprise Linux®</li> <li>• Dell EMC OpenManage</li> <li>• Dell EMC OneFS</li> </ul>	<ul style="list-style-type: none"> <li>• Splunk Enterprise</li> <li>• Splunk Universal Forwarder</li> <li>• Red Hat Enterprise Linux</li> <li>• VMware vSphere® Enterprise</li> <li>• VMware vCenter Server®</li> <li>• VMware vSAN Enterprise</li> <li>• VMware vRealize® Log Insight™</li> <li>• VxRail Manager</li> </ul>	<ul style="list-style-type: none"> <li>• Splunk Enterprise</li> <li>• Splunk Universal Forwarder</li> <li>• Red Hat Enterprise Linux</li> <li>• VMware vSphere Enterprise</li> <li>• VMware vCenter Server</li> <li>• Dell EMC Vision Intelligent operations</li> </ul>
	<a href="#">Design Guide</a>	<a href="#">Design Guide</a>	<a href="#">Design Guide</a>

## Solution overview



Splunk IT Service Intelligence



Splunk Enterprise Security

## Solution highlights

- **Dell EMC VxRail:** A pre-configured and pre-tested VMware hyperconverged infrastructure (HCI) appliance, powered by industry leading VMware vSAN™ and vSphere software. The VxRail appliance streamlines and extends the VMware environment while dramatically simplifying IT operations with a known and proven building block for the software defined data center (SDDC).
- **Dell EMC PowerFlex:** These software-defined storage solutions enable transformational agility for organizations looking to modernize their data center operations. PowerFlex enables extreme flexibility, massive scalability, and enterprise-class performance and resilience while simplifying infrastructure management and operations.
- **Dell EMC PowerScale:** Unlock the potential of your data with large capacity and high performance. Dell EMC Isilon storage, part of the PowerScale family, uses intelligent software to scale data across a large number of commodity hardware units, enabling explosive growth in performance and capacity.
- **Dell EMC PowerEdge servers:** Engineered to deliver unmatched performance and versatile configurations to meet the demands of analytics and AI workloads. Flash storage, the latest processors, greater memory bandwidth and flexible local storage make Dell EMC PowerEdge servers a foundational choice for analytics and Splunk.
- **Dell EMC PowerSwitch networking:** Today's analytics workloads call for new thinking about network architecture. Based on open standards, Dell EMC networking frees the data center from outdated, proprietary approaches. Our future-ready networking technology helps you improve network performance, lower networking costs and remain flexible to adopt new innovations. Take control of your network's future and learn how the Dell Technologies strategy for open networking can dramatically transform your business.
- **Splunk Enterprise software** enables collection, indexing and visualization of machine-generated data gathered from different sources in the IT infrastructure. These sources can include applications, networking devices, host and server logs, mobile devices and more. Splunk turns silos of data into operational insights and provides visibility across the IT infrastructure to enable faster problem solving and informed, data-driven decisions. Splunk also:
  - Blends metrics and events from both structured and unstructured data sources
  - Delivers powerful visualizations to reveal relationships, track trends and accelerate investigations
  - Collects and correlates multiple data sources to rapidly pinpoint service degradations and reduce MTTR
  - Monitors infrastructure to detect anomalies and prevent problems in real time

## Services and financing

Dell Technologies is there for you every step of the way, linking people, processes and technology to accelerate innovation and enable optimal business outcomes.

- [Analytics Consulting Services](#) help you create a competitive advantage for your business. Our expert consultants work with companies at all stages of analytics to help you plan, implement and optimize solutions that enable you to unlock your data capital and support advanced techniques, such as AI and ML.
- [Deployment Services](#) help you streamline complexity and bring new IT investments online as quickly as possible. Leverage our 30+ years of experience for efficient and reliable solution deployment to accelerate adoption and return on investment (ROI) while freeing IT staff for more strategic work.

- [Support Services](#) driven by AI and deep learning (DL) will change the way you think about support with smart, ground-breaking technology backed by experts to help you maximize productivity, uptime and convenience. Experience more than just fast problem resolution — our AI engine proactively detects and prevents issues before they impact performance.
- [Payment Solutions](#) from Dell Financial Services help you maximize your IT budget and get the technology you need today. Our portfolio includes traditional leasing and financing options, as well as advanced flexible consumption products.
- [Dell Technologies On Demand](#) offers a simple approach that gives you a wide range of consumption models, payment solutions and services so you can optimize for a variety of factors while realizing more predictable outcomes.
- [Managed Services](#) can help reduce the cost, complexity and risk of managing IT so you can focus your resources on digital innovation and transformation while our experts help optimize your IT operations and investment.
- [Residency Services](#) provide the expertise needed to drive effective IT transformation and keep IT infrastructure running at its peak. Resident experts work tirelessly to address challenges and requirements, with the ability to adjust as priorities shift.

“With Dell, we get world-class support, so we can avoid the finger-pointing you get with competing vendors. This is a key to our relationship.”

— Barry Carter,  
Chief Information Officer,  
RealPage<sup>2</sup>

## Why choose Dell Technologies for Splunk?

We're committed to advancing analytics, HPC and AI, and we've dedicated a great deal of resources toward that goal.

- Schedule an [executive briefing](#) and collaborate on ways to reach your business goals.
- [Dell Technologies Customer Solution Centers](#) are staffed with computer scientists, engineers and Ph.D.s who are subject matter experts in a variety of disciplines.
- We are committed to [providing you with choice](#). We want you to get what you need and have a great experience working with us. If we don't have what you need, we'll tell you who does. We believe in being open, and we publish our performance results.
- Dell Technologies is the only company in the world with a portfolio that spans from workstations to supercomputers, including servers, networking, storage, software and services.
- Because Dell Technologies offers such a wide selection of solutions, we can act as your trusted advisor without trying to sell you a one-size-fits-all approach to your problem. That range of solutions has also given us the expertise to understand a broad spectrum of challenges and how to address them.

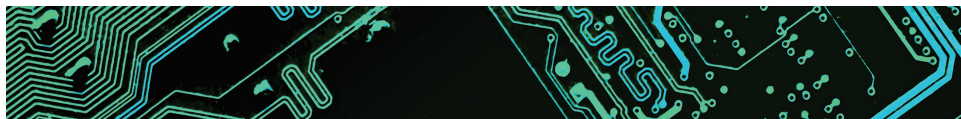
## Customer Solution Centers

Our global network of dedicated [Dell Technologies Customer Solution Centers](#) are trusted environments where world-class IT experts collaborate with you to share best practices, facilitate in-depth discussions of effective business strategies and help your business become more successful and competitive. Dell Technologies Customer Solution Centers reduce the risks associated with new technology investments and can help improve speed of implementation.

## AI Experience Zones

Are you curious about AI and what it can do for your business? Run demos, try proofs of concept and pilot software in Singapore, Seoul, Sydney, Bangalore and other Customer Solution Centers. Dell Technologies experts are available to collaborate and share best practices as you explore the latest technology, and get the information and hands-on experience you need for your advanced computing workloads.





## HPC & AI Innovation Lab

The [Dell Technologies HPC & AI Innovation Lab](#) in Austin, Texas, is the flagship innovation center. Housed in a 13,000-square-foot data center, it gives you access to thousands of Dell EMC servers, three powerful HPC clusters, and sophisticated storage and network systems. It's staffed by a dedicated group of computer scientists, engineers and subject matter experts who actively partner and collaborate with customers and other members of the HPC community. The team engineers HPC and AI solutions, tests new and emerging technologies, and shares expertise including performance results and best practices.

## HPC & AI Centers of Excellence

As analytics, HPC and AI converge and the technology evolves, Dell Technologies worldwide [HPC & AI Centers of Excellence](#) provide thought leadership, test new technologies and share best practices. They maintain local industry partnerships and have direct access to Dell and other technology creators to incorporate your feedback and needs into their roadmaps. Through collaboration, Dell Technologies HPC & AI Centers of Excellence provide a network of resources based on the wide-ranging know-how and experience in the community.

## Proven results

Dell Technologies holds leadership positions in some of the biggest and largest-growth categories in the IT infrastructure business, and that means customers can confidently source information technology needs from Dell Technologies.

- #1 in servers<sup>4</sup>
- #1 in converged and hyperconverged infrastructure<sup>5</sup>
- #1 in storage<sup>6</sup>
- #1 cloud IT infrastructure<sup>7</sup>

See [Dell Technologies Key Facts](#).

## Take the next step, today.

Machine data is everywhere, and it holds the key to better understanding user transactions, customer behavior, machine behavior, security threats, fraudulent activity and more. Contact your Dell Technologies or authorized partner for more details on how to leverage your machine data, today.

### Contact us

To learn more, visit [DellTechnologies.com/Analytics](https://DellTechnologies.com/Analytics) or [contact](#) your local representative or authorized reseller.

