Dell Blueprint for Big Data and Analytics

Accelerate time to value for data-driven initiatives

The big data challenge

In today’s enterprise environments, big data equates to big challenges for the IT organization. The amount of data that now must be captured, stored, processed and analyzed grows by the day. And the variety of that data is now a mix of structured, unstructured and semi-structured data from countless sources—ranging from enterprise systems and user desktops to social media and the Internet of Things.

From a business perspective, the overarching challenge is to quickly turn mountains of data into insights that drive better decisions, enable closer customer relationships, enhance security and meet other critical corporate goals. To make this happen, the IT organization must ensure that data is cost-effectively managed, shared by systems across the enterprise, and quickly and securely made available for analysis and action by line-of-business teams.

Here’s where things get harder. Without the right resources and the correct skill sets, planning, installing, designing, implementing and operating a big data and analytics environment can be an enormous challenge for an IT organization. Additionally, many organizations are moving away from best-of-breed solutions built in-house because they simply don’t have the time, resources or know-how and they can’t tolerate a long window of time before realizing time-to-value and ROI payoff.

Dell focuses closely on all of these challenges—with an eye toward aligning IT and business goals to drive better outcomes. In these efforts, we work collaboratively with our customers to understand their goals and to identify and implement the Dell blueprint that will help solve the specific challenges.
A blueprint for big data and analytics

To help identify the right technologies and solutions for use cases, Dell provides a comprehensive technology blueprint for big data and analytics. With this blueprint, Dell enables and accelerates the big data journey with reference architectures right-sized for business, turnkey engineered solutions, and best-in-class software suites.

This blueprint does a great deal of the heavy lifting for the IT organization. Rather than undertaking a risky, long-running technology project, IT professionals can now leverage the Dell blueprint to gain proven approaches to solving today’s big data and analytics challenges.

Let’s look at the key components of the Dell Blueprint for Big Data and Analytics.

REFERENCE ARCHITECTURES
Dell offers tested and certified reference architectures for small, medium and large big-data and analytics deployments. These technical resources guide the deployment of solutions that incorporate technologies from industry leaders, as well as from the vast Dell portfolio. Reference architectures are tested and validated and cover all the hardware and software needed for a complete big data and analytics environment.

ENGINEERED SOLUTIONS
Our engineered solutions bring together the components of complete big data and analytics environments in turnkey appliances that are easy to order, quick to deploy and easy to scale. Dell takes the hard work out of building, deploying, tuning, configuring and optimizing environments—so the IT team can spend more time helping the business gain critical insights from huge amounts of data.

SOFTWARE SUITES
The Dell software portfolio offers an unprecedented mix of leading-edge technologies for data analytics, data integration and data management. Collectively, these software products cover the end-to-end needs of a big data and analytics environment.

PROFESSIONAL SERVICES
Dell Deployment and Consulting can help enterprises quickly realize the full benefit of big data and analytics investments while limiting business disruptions. For a turnkey solution, Dell can provide on-site deployment of the solution hardware, configuration of servers and network switches, and installation of the solution software.

BUSINESS-DRIVEN USE CASES
Let’s look at some examples of the way organizations are leveraging the Dell blueprint to conquer their big data and analytics challenges. These scenarios outline typical customer experiences with the components of the Dell Blueprint for Big Data and Analytics.

Customer churn analysis

THE CHALLENGE
The chief marketing officer at a large company wants to use a wide range of data to understand customer churn and proactively identify customers who might be on the verge of taking their business elsewhere. The CMO envisions coupling sentiment analysis based on data from social media with data from the company’s transactional and customer information systems to gain a 360-degree view of customers.

The CMO is dismayed when the CIO informs him that this request is beyond the capabilities of the company’s enterprise data warehouse and its business intelligence tools, neither of which can handle unstructured and semi-structured data.
THE SOLUTION

The Dell Business Transformation Architecture brings together all the technology components an organization needs to gain a 360-degree view of its customers, including a rich mix of Dell technologies along with Cloudera Enterprise, the industry’s leading Hadoop distribution. With this end-to-end solution, the company can manage, capture, integrate and analyze massive amounts of structured, unstructured and semi-structured data.

Integration of off-premises and on-premises data enables the synchronization of information across various data stores, so it’s ready for analysis. With these capabilities in place, the company’s business analysts can leverage smart algorithms to derive actionable information from masses of data from disparate systems and sources.

Data warehouse optimization

THE CHALLENGE

As the volume, velocity and variety of data increases, a company’s enterprise data warehouse (EDW) is being pushed to its limits. This overload stems to a large degree from the many processes, such as data transform jobs, which have been moved into the EDW because traditional extract-transform-load (ETL) tools could not deal with the size of the data volumes.

The company doesn’t have the budget for a substantial upgrade of the EDW, including the costs for software licenses, infrastructure and consulting fees. At the same time, the company is paying a hidden price in the form of lost business opportunities and slow decision making because queries of large datasets take far too long to run in the overloaded EDW.

THE SOLUTION

The Dell | Cloudera | Syncsort Data Warehouse Optimization – ETL Offload solution solves this problem. It enables the company to move ETL processes into a lower-cost Hadoop environment. This frees up capacity in the EDW to accelerate the queries of large data sets and the generation of reports that guide critical business decisions.

Jointly designed by Dell, Cloudera, Intel and Syncsort, this tested and validated Reference Architecture outlines the end-to-end components for a complete ETL offload solution. The solution includes all the hardware, software, resources and services needed to turn Hadoop into a robust ETL environment.
**Accelerating business-intelligence reporting**

**THE CHALLENGE**

The chief operating officer for a large retailer wants to give her staff the ability to analyze purchase orders as they are placed to more accurately manage production demand and avoid problems with overstocking. This capability would allow the company to preemptively respond to changing market conditions.

The COO is frustrated to learn that the volume of operational data available for proactive business insight often exceeds the amount of data that the company’s conventional disk-based systems can process within a reasonable timeframe. Instead of gaining immediate access to the detailed data, the company is forced to reduce or summarize the data from operational applications and external sources to feed its analytic models. The result is inadequate access to the full spectrum of information needed and unacceptable lag times between gathering data and gaining meaningful insights.

**THE SOLUTION**

The Dell SAP HANA appliance, part of the Dell engineered solutions portfolio, delivers a new approach that gives the company’s business operations team instantaneous access to results gleaned from mountains of disparate data.

SAP HANA provides multipurpose, data-source-agnostic, in-memory database appliance software optimized on established Dell servers. The appliance includes networking and storage, with all components delivered as an integrated solution by Dell Global Services. This engineered solution dramatically increases the availability and speed of business information.

**Massively parallel processing: real-time decision support of relational and unstructured data**

**THE CHALLENGE**

A large manufacturer struggles to understand higher-than-expected defect and failure rates in one of its product lines. The company’s engineering analysts can run detailed queries on structured data from manufacturing systems but they have no way to analyze that data in conjunction with unstructured data from engineering tests and sensors on the supply chain, or the Internet of Things (IoT). What they really need is a solution that allows them to consolidate all of their data and analyze it collectively with a common set of tools.

**THE SOLUTION**

The Microsoft Analytics Platform System (APS) by Dell provides an ideal solution to the company’s data challenges. It combines technologies for analytics on structured, unstructured and semi-structured data from enterprise systems, engineering tests, the IoT and countless other sources.

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“When we looked for an IT provider to deliver an SAP HANA appliance, Dell came closest to our demands.”

—Christian Sänger Aareon, Aareon
The system incorporates all of the hardware, software and services components the company needs for a complete, end-to-end analytics solution in a Microsoft-certified system. The appliance is co-engineered and jointly supported by Dell and Microsoft for a “white glove” experience from delivery to support.

A fast track data warehouse

THE CHALLENGE

To boost competitiveness, a regional grocery chain wants to increase its data warehouse performance so it can deliver store-level purchasing data more quickly to its business analysts and managers. In particular, the company’s chief data warehousing executive wants to make updated data available to employees on a daily basis so they can analyze the effectiveness of current promotions.

This proves to be a challenging proposition with the company’s aging and traditional data warehouse. Processes for gathering, consolidating and transforming data are inconsistent. It takes an unreasonably long time to load the files, and query times are way too slow for timely business decisions. Clearly, the company needs a new path forward.

THE SOLUTION

The grocery chain finds an ideal solution in the Dell Reference Architectures for Data Warehouse Fast Track (DWFT) for SQL Server 2014 solutions. These validated and certified Reference Architectures, developed in close collaboration with Microsoft, are designed to optimize and accelerate data warehouse deployments and performance, enable faster query response, and lower data latency, while minimizing cost and complexity.

The reference configurations are based on Microsoft best practices and guidelines. They give the company the guidance it needs to create a fully supported high-performance data warehouse configuration. Better still, the company’s IT professionals can now quickly and efficiently order hardware and set up and configure solutions, with minimal testing and tuning, resulting in much faster time-to-value.

An end-to-end software suite

Here’s a quick overview of some of the leading-edge technologies for data analytics, data integration and data management in the Dell Blueprint for Big Data and Analytics.

DELL STATISTICA BIG DATA ANALYTICS

Dell Statistica provides the most comprehensive array of data analysis, data management, data visualization and data mining solutions. Techniques include the widest selection of predictive modeling, clustering, classification and exploratory procedures in one software platform.
DELL BOOMI
Dell Boom integration platform as a service (iPaaS), AtomSphere, and Dell Boom MDM harness the power of Salesforce Analytics Cloud to enable every business user to instantly and confidently gain key business insights from their data, from multiple sources, from any device.

DELL TOAD™ DATA POINT
Dell Toad Data Point is a cross-platform self-service data-integration tool that simplifies data access, data preparation and provisioning. It provides nearly limitless data connectivity, desktop data integration, visual query building and workflow automation.

DELL TOAD INTELLIGENCE CENTRAL
Dell Toad Intelligence Central allows users to increase collaboration and streamline data sharing. It provides a centralized repository for accurate, up-to-date information to make data provisioning more efficient and greatly improves productivity.

DELL SHAREPLEX
Dell SharePlex allows users to achieve three core IT initiatives: scalability, availability and near real-time data integration with the easiest, affordable, impact-free, all-in-one database replication solution.

Why Dell?
Dell has decades of experience in building and supporting secure end-to-end solutions that enable the integration, management and analysis of diverse types of data. No other technology vendor can comprehensively and holistically meet enterprise-scale big data and analytics needs without necessitating vendor lock-in, further propagating data silos, or requiring a rip-and-replace technology approach to get started.

Dell couples its open approach with a big data and analytics portfolio that delivers the value of advanced business-intelligence tools, the industry’s first and leading cloud integration tools, unique preconfigured Hadoop offerings, a 30-year analytics history from Statistica, deep services expertise, and access to the network of global Dell Solution Centers to assist with solution testing and proofs of concept.

Whether the goal is to enhance the customer experience, optimize operations or improve IT economics, Dell can help IT and business leaders get above the hype to solve tangible business problems—and turn data into a competitive advantage.

Capitalizing on all types of data
When it comes to big data and analytics, the challenges are unprecedented—and so are the opportunities. With its comprehensive technology blueprint for big data and analytics, Dell helps organizations conquer the challenges and capitalize on the opportunities brought by massive amounts of data.

Via this blueprint, Dell enables and accelerates the big data journey with solutions that are right-sized and outcome-focused. Enterprises can now leverage proven reference architectures right-sized for the business, turnkey engineered solutions and best-in-class software suites, along with end-to-end professional services.

Ultimately, the combination of technologies and services from Dell and its partners delivers the capabilities needed to connect all data silos, analyze all relevant data and act on data-driven insights.

To learn more, visit Dell Blueprint for Big Data and Analytics.