

# Meet Demanding Web-Scale Application Needs with Highly Reliable and Scalable Directory Services

As businesses become increasingly dependent on their online applications to provide critical services to customers, partners and employees, directory services become the focal point of authentication and access control decisions. Enterprise directory services need to be highly available and efficient to support access to applications while being cost-effective and scalable in response to a growing user base and application portfolio. CA Directory is an easy-to-manage directory service with superior performance for read and write operations, transparent and distributed replication across any number of servers and automatic recovery for seamless failover and fallback. With these market-leading capabilities, CA Directory provides a proven, standards-based platform for your application infrastructure that allows you to reduce your costs while still delivering superior user experience and improved business agility.

## Business Challenges

- Businesses are becoming increasingly dependent on their online applications to provide critical services for customers, employees and business partners. These applications must increasingly support high volumes of users without becoming sluggish or unresponsive. Meanwhile, security requirements are evolving from simple user authentication to tracking detailed login and personalized information associated with dynamic business operations.
- The ability for online applications to support superior availability, reliability, scalability and performance is directly dependent on the capabilities of the supporting directory infrastructure.
- In the past, organizations have coped with directory performance limitations by restricting applications to performing only simple searches on the directory or by increasing the hardware. However, these approaches are costly and not effective. Moreover, increased security and compliance requirements mean more dynamic information needs to be stored and accessed in the directory.
- Organizations are seeking high-performance solutions for managing their large transaction volumes, but in a manner that does not significantly increase hardware or administrative costs.



## Key Benefits and Results

- Provide scalability and performance without exorbitant hardware costs.
- Meet the needs of new, dynamic cloud-scale business applications.
- Improve operational efficiency by consolidating islands of data into a single information backbone.
- Deliver a highly responsive and always available experience for your application users.

Marquee benefits yielding **\$4.1M** per year in savings are detailed on the reverse side of this document in order to show examples of business value achievable through this CA Directory approach

## CA Directory

### Excels in all Facets of Directory Management

CA Directory provides you with a high-performance directory foundation for online applications. This lets your organization:

- Provide scalability without exorbitant hardware costs
- Meet the needs of new and future dynamic business applications
- Improve operational efficiency by consolidating islands of data into a single information backbone
- Provide a highly responsive and always available experience for your online application users

Highly Scalable	Advanced Replication	High-Speed
Secure	Reliable	Small Footprint
Flexible	High-Performance	Useful Monitoring

## Key Features

- **Exceptional read and write performance.** Ability to perform operations at rates of up to 20,000 modifications or searches per second on entry level hardware.
- **High scalability.** Scales to millions of users and a billion entries by distributing data across any number of servers.
- **Strong security.** Support for strong authentication; Hardware Security Modules (HSMs); rich password policies; fine-grained, rule-based and role-based access controls; SSL and TLS link encryption and all common password hashing standards including SHA-2.
- **Extreme reliability.** HA and DR with built-in load balancing and seamless failover and fallback; configurable write-through and write-behind replication for cross-datacenter data consistency and integrity.

For more information, please visit [ca.com/CADirectory](https://ca.com/CADirectory)





# Business Value Estimations

CA Directory benefits can be quantified via a wide range of directory benefit scenarios. A selection of these is listed below to show common areas measured.



Business Value Proposition	Business Value Enabler	Specific Measurement	Impact Range	Key Resources <sup>1</sup> Affected	Average <sup>2</sup> Resource Value	Projected <sup>3</sup> Savings / year
<b>APPLICATION UPTIME</b> Increased customer/partner revenue due to improved application uptime and ability to deliver against SLOs	<ul style="list-style-type: none"> <li>Intelligent failover and failback capabilities means that if a server goes down, other servers can automatically and transparently take over with no loss of service</li> <li>Allows to safely load, share and instantaneously failover to alternative servers in the case of machine or network outages. When that server comes back up, it will automatically resynchronize and rejoin the backbone</li> <li>In a replicated environment, CA Directory can automatically and transparently route queries to alternative servers in the event that a machine fails or is taken offline</li> <li>Key for providing availability and allowing uninterrupted service in the case of hardware failures or if it is necessary to take machines offline for maintenance</li> </ul>	Data Center downtime impact on revenue @ \$7.9K/minute	15-25%	Cost of unplanned downtime <sup>4</sup>	20 hours	\$1,896,000
<b>APPLICATION PERFORMANCE</b> Reduced customer loss and improved user experience due to superior application performance	<ul style="list-style-type: none"> <li>Ability to support large-scale distributed and replicated backbone infrastructures without sacrificing reliability or performance</li> <li>Provides intelligent and transparent chaining of queries to distributed servers which allows applications to view the directory as a single logical federated backbone directory system regardless of the number of servers</li> <li>Routing DSA provides built-in load-balancing and data sharing; horizontal and logical partitioning of large data sets</li> </ul>	Staff productivity	.1-3% <sup>5</sup>	Impacted enterprise SSO users	10,000 <sup>6</sup>	\$1,500,000
<b>TOTAL COST OF OWNERSHIP</b> Reduced TCO due to easy to use UI, automated administration and smaller resource footprint	<ul style="list-style-type: none"> <li>Easy-to-use UI, REST API and command line interfaces for management and automation</li> <li>Extensive logging to enable monitoring and troubleshooting using existing infrastructure/tools</li> <li>Support for heterogeneous platforms existing in customer datacenters</li> <li>Low CAPEX in server resource requirements and database licensing costs</li> <li>Built-in load balancing and router</li> <li>Bi-directional replication capabilities between CA Directory and Oracle DSEE to allow for migration away from EOL product</li> </ul>	Cost avoidance for legacy system operational and solution support costs	95-100%	Annual operating budget for legacy solution <sup>7</sup>	\$170,000	\$170,000
<b>SCALABILITY</b> Faster time-to-market and application agility due to easy scalability of directory Infrastructure	<ul style="list-style-type: none"> <li>Ability to support large-scale distributed and replicated backbone infrastructures without sacrificing reliability or performance</li> <li>Support for LDAP and SCIM standards for application integration</li> <li>Easy to add capacity and distribute load</li> </ul>	External Auditor fees	45-55%	Annual audit compliance issue volume <sup>8</sup>	\$400,000	\$200,000
<b>APPLICATION UPTIME</b> Improved user productivity with reliability of IAM infrastructure (due to Directory data integrity and replication)	<ul style="list-style-type: none"> <li>In-sync guarantee with full "write through" replication; configurable write-behind for cross-datacenter replication</li> <li>The only directory that supports n-way multi-master real-time replication</li> <li>Ability to Backup online (without service interruption) and simple restore with disk copy</li> </ul>	Reduction in average time to implement new app requirements	25 - 35%	Average time to implement new App requirements <sup>9</sup>	40 days	\$240,000
<b>SECURITY &amp; COMPLIANCE</b> Reduced security audit and compliance costs due to built-in security features	<ul style="list-style-type: none"> <li>Effective security controls necessary to support secure applications, such as identity and access management systems, single sign-on servers, web portals and large-scale UNIX authentication</li> <li>Can enforce extensive password policies, including many password quality, password life cycle and account management options</li> <li>Support for strong authentication; Hardware Security Modules (HSMs); fine-grained, rule-based and role-based access controls; SSL and TLS link encryption and all common password hashing standards including SHA-2</li> <li>Strong security auditing requirement support of distributed security environments</li> <li>Non-root installation</li> </ul>	Reduction in internal developer labor cost	15-35%	Security database developer FTEs <sup>11</sup>	10	\$100,000

- Impact Ranges** shown are estimations derived from the analysis of benchmark data which is a composite of data derived from industry analyst published information, interviews with subject matter experts and experiential data from prior projective analyses.
- Average Resource** column shows resource values representative of those used in business case analyses by the CA Business Value Analytics Team.
- Projected Savings** may be representative results for organizations whose Average Resource values are similar to those in this table. Labor rates for all Employees (Users) are assumed to be \$37.50/hour, \$50.00/hour for IT System Admins. and \$80.00/hour for Software Developers. Actual calculations may include additional parameters. Your CA Technologies representative can provide detailed benefit calculations for values in this column. The values expressed in this table are not a guarantee of achievable results and will vary depending upon your current infrastructure, people, and processes as well as the appropriate, effective implementation, adoption, and use of the CA solution.
- The average cost per minute of stopped production in 2006 was \$22k/Minute for auto industry. [Downtime Costs Auto Industry - Bartol Mag-Probe](#), while the study of US data centers quantifies the average cost of an unplanned data center outage at approx. US\$7,900 per minute [Ponemon Cost of Data Center Outages 2016](#). We have used 4 hours of production down time per year as the impact to sales revenue.
- Frequency of Network outages is estimated at 2 /year, lasting 2 hours based on 2000 hours worked per year which represents an impact range of .2%
- The Projected Financial Impact calculations are based on a blended labor rate for all FTEs (domestic & overseas) of \$37.5 /hour.
- The average # of development hours required per Legacy system is 250 hours @ \$80/hr. The avg. annual legacy SSO system maintenance fee budget is \$50K plus 1 System Admin FTE to operate/maintain the legacy solution.
- Annual Compliance Volume estimated at 100 issues with External Auditor Fees of \$4K per remediated issue.
- The average time to implement a new application requirements is 40 days. New Revenue potential of \$20,000 per day.
- The average cost Help Desk cost is \$20/per call, with 10% of annual Service Desk calls being made for large-scale, mission-critical, directory-enabled applications.
- 25% of Total Developer FTE count. (Sum of average time spent implementing / Deploying Security, Integrations & Management: 10% + 10% + 5% ) The average of 10 new connectors deployed annually at 240 hours per connector.

