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The People Behind BIRT®

BIRT in the Cloud:
Deployment Options for ActuateOne

With the increase in information analysis needs and an explosion of digital information, companies today are faced with the prospect of potentially spending millions of dollars on hardware and data storage costs. Cloud computing has emerged as the economical solution for analyzing big data and powering enterprise applications. Cloud computing has become popular as it provides optimum use of resources, adding extremely high data recovery guarantees, multiple security layers and multi location redundancy while concurrently solving big-data storage and access problems.

Notice

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Introduction

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Actuate provides organizations with the tools they need to safely and securely deploy BI on the cloud and offers a variety of options for the safe use and dissemination of data in business intelligence implementations. These options include:

- *Public Cloud: Deploy in a completely managed cloud environment (BIRT onDemand powered by Actuate BIRT iServer technology + Amazon AWS Cloud or other cloud storage vendor)*
- *Private Cloud: Deploy BIRT iServer within your private virtualized environment and license by either a CPU Core or Virtual compute power based 'Work Unit'.*
- *Hybrid Cloud: Deploy in a private + public hybrid environment by combining CPU/Work Unit based licenses for your private cloud with Amazon AWS based added capacity.*

The Actuate 11 iServer was built with a cloud deployment focus with stateless image support and dynamic provisioning.
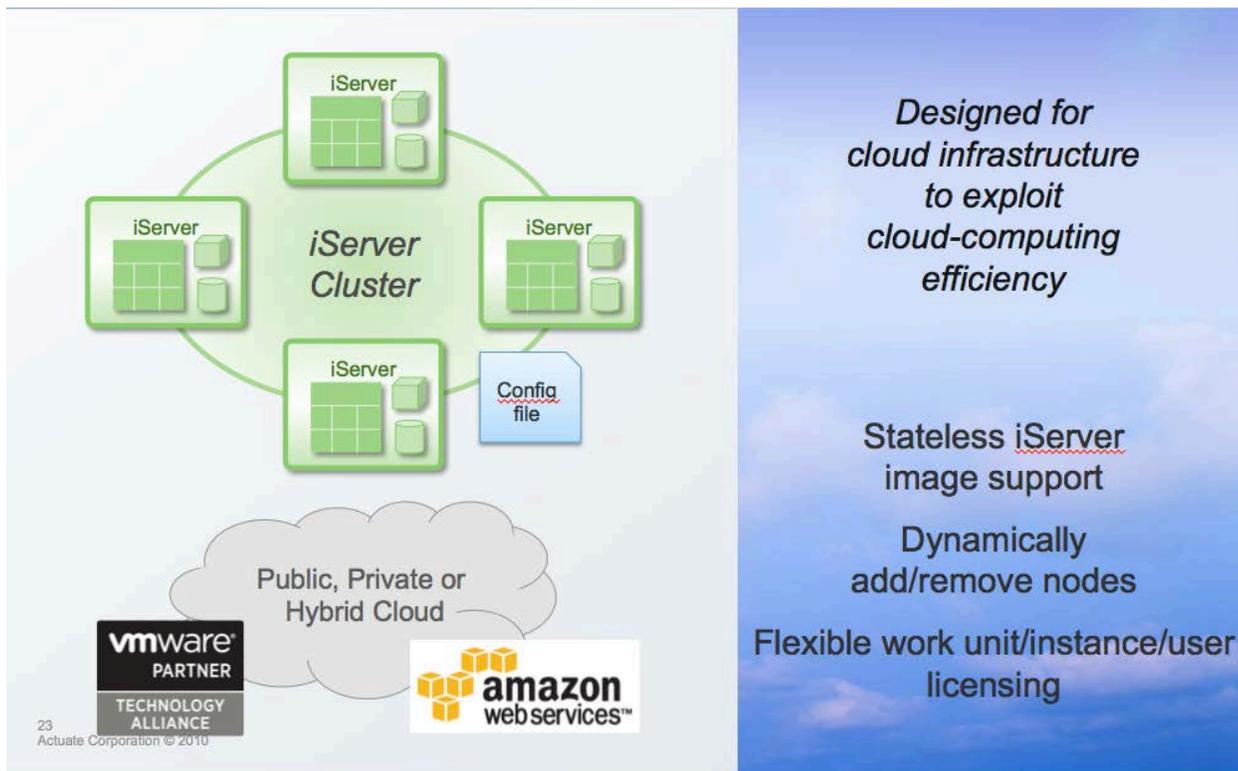

Actuate's managed cloud solution, BIRT onDemand, provides a public or hybrid cloud environment within which most of the problems associated with any deployment—security, scalability and flexibility—are resolved.
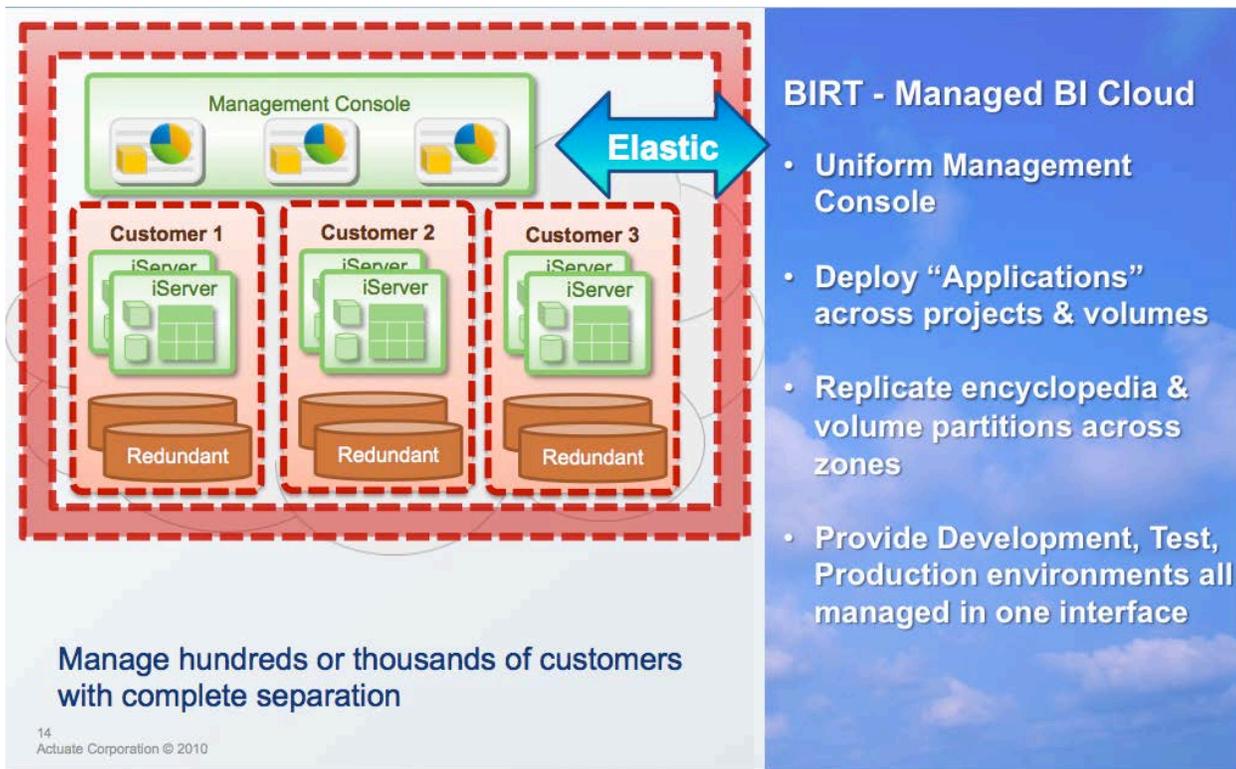
BIRT onDemand: Smart, Secure, Managed Cloud BI

Almost all BI systems need a significant amount of power to crunch data and porting BI applications to a virtual environment has its challenges. With BIRT OnDemand, Actuate presents a completely managed cloud BI option that completely releases your BI team from platform management hassles, letting them focus on the discovery of information for your business. BIRT OnDemand managed cloud BI has these inherent advantages over a traditional virtualized environment:

- *Easy to provision: BIRT content can be deployed almost instantly by signing up for an account on our preconfigured cloud environment. BIRT OnDemand includes all the components available in an Actuate 11 on-premise or private cloud installation, including Page Level Security, Multi-Tenant Option, in-memory Data Objects, and more.*
- *Easy to change: BIRT onDemand managed BI architecture allows administrators to make changes on the fly, adding or removing resources as necessary*
- *Easy to scale: BIRT onDemand provides the infinite scalability of the time-tested and benchmarked iServer; there are no node limits, instance limits or project size limits*
- *Easy to license: BIRT onDemand offers per user licensing and capacity based instance licensing and a gives organizations a low cost point of entry while providing an enterprise scale BI platform on the cloud*
- *Easy to compartmentalize/separate projects: BIRT onDemand's multi-instance, multi-tenant capabilities provide organizations with the ability to deploy multiple projects in the same environment without danger of intermingling data sources, report files, etc.*
- *Easy to Integrate: BIRT OnDemand provides complete object level access to dashboards, reports, charts within reports, independent dashboard components and the data object layer to transparently integrate with your existing Web 2.0 portals or SaaS applications. The Diagram below illustrates our layered approach to integration.*
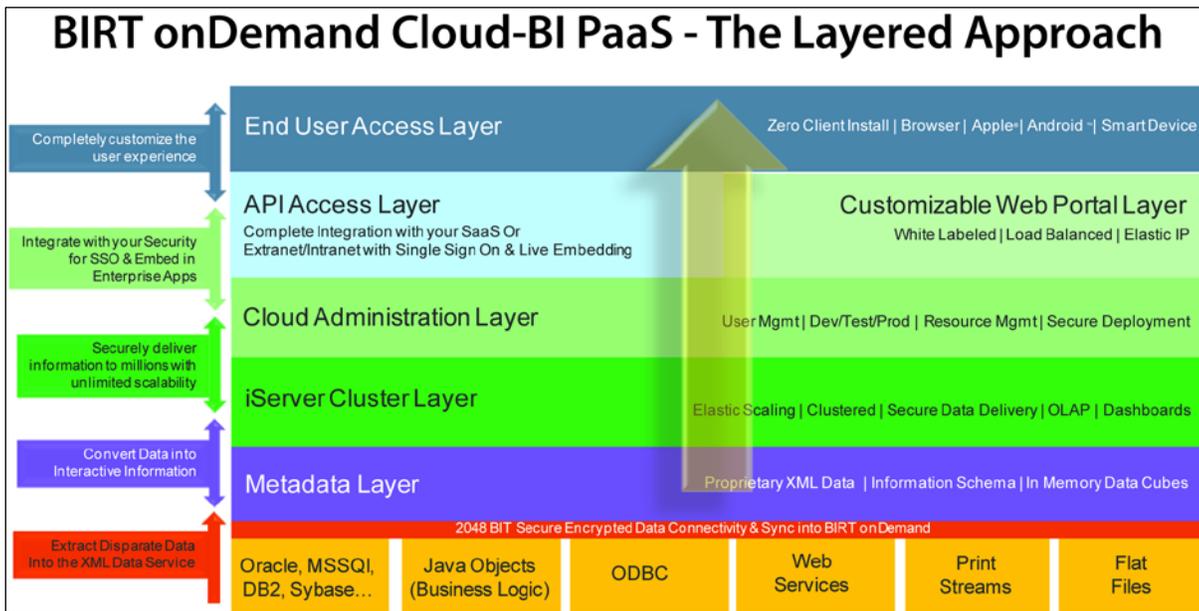
BIRT onDemand is built with a layered approach to enable complete integration with an existing web portal or SaaS solution.

Secure Views of Corporate Information

One of the largest roadblocks to adoption of Cloud as a platform for enterprise computing has been the data and personal information security concerns that accompany a public (and in some cases a private) cloud implementation. Actuate has implemented multiple security measures within the core product and the BIRT OnDemand managed cloud platform to bolster security for its customers.

1) *In Product Security Enhancement:*
   BIRT iServer 11 allows customers to store the iServer encyclopedia and metadata in a relational database outside the iServer's proprietary file system. This enhances security by allowing an additional level of ACLs to be applied at the database level on top of iServer user/volume security structure. Also, backup and recovery of the metadata can now take advantage of database level processes.

2) *Enhanced security through multi-instance, multi-tenancy on the public cloud:*
   BIRT OnDemand implements an additional layer of security by providing complete separation of virtual resources for each customer. Independent BOD Clusters consisting of iServer cluster/ Amazon RDS databases are deployed for each customer account allowing a second level of firewall protection. This architecture also provides complete separation of database and computing power/memory spaces to prevent accidental or intentional unauthorized access.

3) *Page Level Security*
   a. *BIRT iServer has a unique security feature which allows the secure deployment of a single report to thousands of end users while the iServer security uses ACLs embedded into the report design to control the content display.*
   b. *A single report design executes and runs queries against production data sources ahead of time and produces a master report catalog, which is stored on the BIRT iServer (BIRT onDemand).*
   c. *Later, individual users log on to BIRT iServer or BIRT onDemand to retrieve their reports. User privileges are then used to render a personalized report that contains only the data and report components a user is authorized to see.*

Data Management, Movement and Publishing

Actuate BIRT deployed on Cloud platforms allows organizations to move and publish data securely and easily. This is accomplished by combining a variety of best practices and methods.

Minimized movement for maximum security data stores

In a private cloud implementation Actuate offers:

- *Safe data sourcing/integration: Internal data stores can be safely integrated with Internet data stores within our metadata layer without comingling or exposing data*
- *High-performance data sourcing: Large-scale data movement is minimized, as data doesn't have to be pushed outside the firewall; there is no data exposure*
- *Large data store support: If an organization needs access to a large data store, Actuate BIRT supports it (Apache™ Hadoop™, Infobright® etc.)*

In a public/hybrid cloud implementation, Actuate offers elastic clustering.

Elastic clustering

For virtual private and public cloud environments, Actuate 11 introduced a capability called "elastic clustering," which allows a stateless iServer image to automatically configure itself upon startup, including its membership and role within a cluster. This allows iServer environments to easily expand and contract as the load changes, or to dynamically modify the role an iServer plays during development or testing phases.

This provides N-tier, high-availability within any IT infrastructure. This flexible configuration function is ideal for SaaS and cloud-based infrastructures that require multi-continent, multi-national high availability. This is accomplished by separating and independently scaling each server-side element of Actuate's platform.

- *Multi-instance, multi-threaded: Actuate's front end, called the Information Console, is a multi-instance, multi-threaded portal that can be load balanced across multiple sites, portals, accounts and customers*
- *Stateless: Actuate iServer, the content production workhorse of the environment, is also stateless and can be configured externally to adapt to load and deployment capacity demands as necessary*
- Externalized/supported databases: Actuate's iServer encyclopedia metadata (information about the configuration, activity and location of content) is now externalized and supported by third-party databases—Postgres® by default, as well as Oracle®, DB2® and MS SQL Server® 2008. Each can support both encryption and multi-site replication, ensuring that the system is secure and resilient to site-wide failures such as those caused by weather or other natural disasters.
- *Encrypted high performance, replicable network file systems: Securely stores the environment's documents and files; this tier varies by topology and customer environment*
- *Elastic clustering/configuration: AWS or VMWare® images can be configured and managed with tools supplied by AWS or VMWare*
- *Uninterrupted availability: Add and remove nodes in a cluster configuration to meet changing workloads without stopping and restarting the software*
- *Linear scalability: Scales almost linearly, making use of the full processing power of every resource available*

Multivolume/multi-tenant support

Actuate's Multi-Tenant Option (MTO) provides the means to manage multiple, independent projects within a single Actuate cluster or architecture. Without MTO, each project must be deployed on an independent cluster or all projects must agree on a single security model, administrative model and storage scheme to be deployed on a single cluster. This adds additional overhead to the administrative process and/or increases hardware and software licensing costs.

When MTO is enabled, each project instance within a cluster isolates the following characteristics to allow them to be managed independently while they share cluster resources:

- *Encyclopedia management*
- *Security/single sign-on*
- *User/role management*
- *Scheduling*
- *Backup/recovery and archiving*
- *Resource allocation processing*

This allows a single ActuateOne installation to support multiple applications and projects with different characteristics and requirements.

Licensing and Pricing models

Private cloud implementations

To take advantage of Actuate's virtualization-friendly architecture, Actuate offers "Work Unit" licensing which allows an organization to license Actuate on a capacity basis, without binding the software to specific CPUs or CPU/core limits. Work Unit pricing allows customers to license Actuate BIRT in smaller increments than was traditionally possible, with a minimum of two work units per CPU. Two types of work unit are available under the license.

- *Factory Work Units handle server side content generation, scheduling, batch and bulk generation and archiving.*
- Interactive Work Units handle user interactions and operations such as report requests, report and dashboard viewing, saving content in different formats, and building and analyzing ad-hoc content.

Public/hybrid cloud implementations

On the public cloud, Actuate offers licensing options that allow organizations to get started at a very low cost entry point, along with the ability to control costs for very large implementations. Two types of licensing options are available:

- *BIRT OnDemand named user seat license paid at a monthly per user rate.*
- *BIRT OnDemand Instance license, which provides preconfigured BIRT OnDemand, clusters at a fixed price capacity model with no limitations on the number of users. Instances are clustered and can be expanded on the fly for added capacity.*

License upgrades

Actuate has introduced performance-based indexing of the operating environment using the hardware benchmarking organization SPEC. Using the SPEC CPU2006 benchmark SPEC_Int rate as a third-party performance index, Actuate has established a repeatable, open policy and formula for determining license upgrade fees when customers move installed licenses.

In 2011, Actuate published a benchmark demonstrating that the server environment scaled linearly against SPEC_Int-rated hardware. For customers planning environment upgrades, this removes the mystery behind how Actuate establishes the value gained when increasing hardware throughput. This formula provides a significant built-in discount for calculating

any fees owed to Actuate when hardware environments are upgraded. Actuate also offers different licensing models that do not impose upgrade fees, such as named user licensing.

In environments where CPU SPEC_Int details cannot be captured, Actuate will impose a cloud-computing license fee that eliminates the requirement to capture hardware performance data.

Deployment Options

BIRT content can be deployed and configured to address the needs of almost any type of reporting project in any business environment:

- *BIRT iServer Deployments in a Private Cloud/Hybrid Cloud: BIRT iServer provides high-scale performance, reliability and security, and supplies BIRT Data Object metadata, numerous integration interfaces, multi-server and multi-project capabilities to enterprise collaborative reporting projects with a host of Cloud optimized features to enhance your private cloud implementation.*
- *BIRT onDemand as a managed Public Cloud or Hybrid : Deploy on the Cloud instantly with any open source or commercial BIRT content. BIRT OnDemand provides all the benefits of cloud computing with state-of-the-art security and industry-leading scalability in a completely managed SaaS-like environment. A BIRT OnDemand environment can also be implemented in a VPC zone, bringing it inside your private network security layer.*

The Progressive Design Architecture

BIRT onDemand is an integral member of Actuate's progressive design architecture, which brings the principles of open source to reporting applications and encourages participation, iterative development and modularity. BIRT Page Level and BIRT SmartSheet Security enable business user self-service in collaborative reporting. The entire progressive design architecture includes:

- *BIRT Reports: Web reports based on open-source BIRT technology from the Eclipse project, available without charge from www.birt-exchange.com.*
- *BIRT Studio: Self-service, ad-hoc web report development within IT control*
- *BIRT Interactive Viewer: End user report viewing and customization*
- *BIRT 360: Dashboards that provide 360° views of data*
- *BIRT Analytics: In-memory analytics application that helps business users uncover trends, identify anomalies and model scenarios*
- *BIRT Mobile options: Distribute BIRT content easily to mobile devices (Apple® and Android™ directly from iServer or BIRT onDemand (Actuate 11SP2 and above)*
- *BIRT iServer: Highly scalable implementation of Actuate services including multi- server and multi-project support; high-availability clustering, failover and load balancing; metadata caching; and enterprise management and tuning features*
- *BIRT onDemand: The smart SAAS Solution for deploying BIRT content in the cloud*

These options provide an array of choices from which to create unique information applications that appeal to any user.

Within the progressive design architecture structure, report designs can be shared among highly skilled report developers, business users and consumers. This encourages participation and supports an iterative report development environment, which speeds development and adoption of information applications.

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System Requirements

Overall system requirements vary with options chosen. For a system analysis based on your specific needs, please contact an Actuate expert at 1-800-914-2259 (US & Canada) or online. You can also contact one of our offices worldwide.

For More Information

To get more information about Actuate security, please contact an Actuate expert at 1-800-914-2259 (US & Canada) or contact us online. You can also contact one of our offices worldwide.
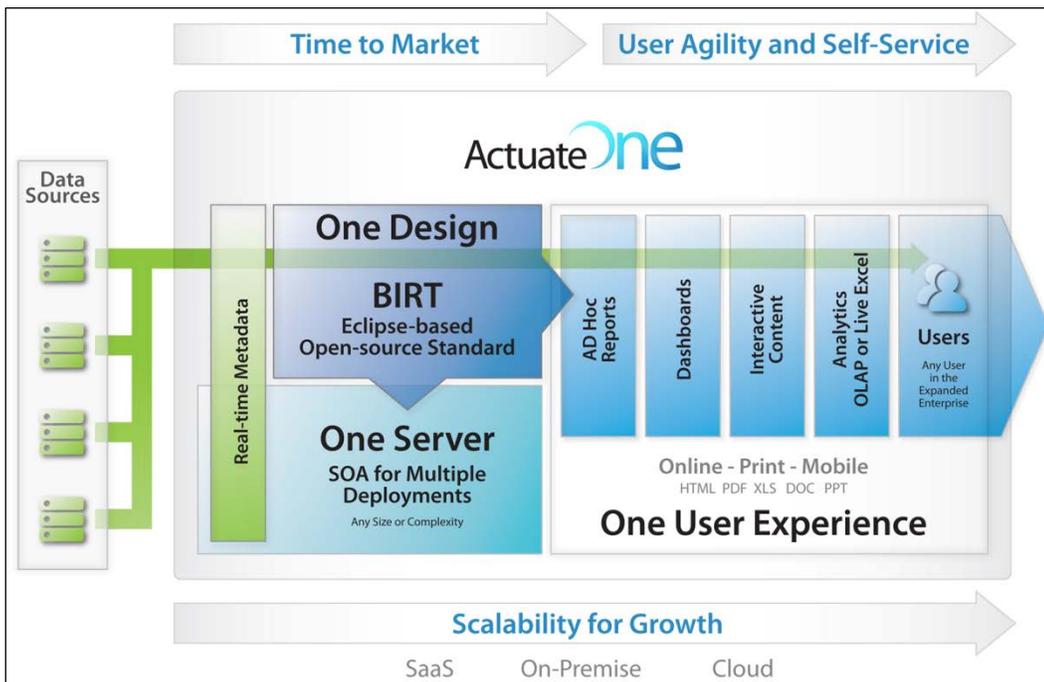
ActuateOne is recognition of a single, common architecture for development and deployment that meets the dynamically changing needs of information consumers.