Cloud Migration

Architectural deep dive into the MicroStrategy Cloud Platform

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Cloud Strengths

High Availability

Scalability

Global Regions

Pay as you Use

Rapid Deployment
INTELLIGENT ENTERPRISE DEPLOYMENT STRATEGY
Skills and components to deploy analytics across a global enterprise.
MicroStrategy Cloud Platform

• Create Pre-Configured Environments in Minutes
• Leverage An Optimized Cloud Architecture
• Mirror and Duplicate Environments
• Move Between Public Clouds
• Control Environments Using Powerful Tools
Cloud Vendors
MicroStrategy is optimized for AWS and Azure

- Most feature rich offering
- Greatest global reach
- DevOps centric

GLOBAL PUBLIC CLOUD SERVICE MARKET SHARE
Q3 2018

enablement
- Appealing to Amazon resistant retailers
Cloud Vendors
MicroStrategy is optimized for AWS and Azure

AWS
- Most feature-rich offering
- Greatest global reach
- DevOps-centric

Azure
- Leverage existing MSFT Enterprise License Agreement
- Strong Hybrid Cloud enablement
- Appealing to Amazon-resistant retailers

GLOBAL PUBLIC CLOUD SERVICE MARKET SHARE
Q3 2018

- AWS 34%
- Azure 14%
- IBM Cloud 7%
- Google Cloud 6%
- Others 39%
Standardized and Repeatable Architecture
Stand up pre-configured and optimized MicroStrategy Environments into single-tenant instances

Cloud Platform Deploys Dev, UAT, and Production Environments

Simple – Hundreds of manual steps for deployment and configuration reduced to a few clicks.

Flexible – choose your deployment options.

Optimized - Distributed and redundant Intelligence Architecture designed for enterprises to deliver maximum performance and high availability.
Mirror and Duplicate Using Automated Backup and Restore

Rapidly stand up and tear down environments for prototyping, testing, and short-term needs

Production Environment

New Region Environment

Machine Learning Project

Upgrade UAT

Education Workshops

.bak backup

Automated backup and snapshotting allow for rapid deployments and agile infrastructure changes – from cloning to failover to recovery.
Move Environments Between Public Clouds

Cross-cloud deployment portability

Backup and restore entire environments across Public Clouds.

Move between AWS and Azure as needed - delivering the same experience to end users.

Environment backup captures metadata, cubes, caches, inbox, images, plugins, ODBC, system properties, configuration settings, statistics, and collaboration data.

*MicroStrategy Labs indicate an average 19.2% variance in efficiency between public cloud versions depending on sizing requirements.
Designed to Increase Time-to-Value and Decrease TCO
MicroStrategy Cloud makes it simple to manage, maintain, update, and schedule tasks

Instant deployment for Teams, Departments, and Enterprises

• Deploy a complete MicroStrategy platform, fully configured and ready to use
• Deploy directly to your AWS or Azure Account
• Cloud Console now available in more languages

Manage and monitor the cloud instance

• Monitor and manage the status and performance of the cloud instances and services from right inside the Cloud Console
• View CPU usage and memory usage on the entire instance, or at each individual service
• Make informed decisions on when to scale up or down environments based on usage

Scheduled tasks to save time and money

• Actions including starting, stopping, rebooting, and resizing an environment can be executed on a pre-set schedule
• Users can choose the frequency of the action, or schedule them to occur on specific dates or times
• Schedule during off-peak times to continue normal daily routines

Automatically upgrade to latest release

• New Notification Center instantly alerts when newer releases are available
• No need to spend additional resources or time as upgrades are automated
• Full backup is created and the entire process takes less than an hour

MicroStrategy Cloud Platform
Customer Responsibilities not Covered by MCP

• Analytics development, administration, and distribution
• Administration of MicroStrategy components
• Administration of infrastructure
• Patching and upgrading of infrastructure
• Infrastructure and MicroStrategy objects backups
• Monitoring of custom KPIs
• Custom Database driver installation
• Connection to data sources
• Authentication setup (LDAP/SSO)
• Customizations
• ETL and DWH for Enterprise Manager/Platform Analytics
• SMTP configuration
• Disaster Recovery strategy
MicroStrategy Cloud Environment

- Based on the MicroStrategy Cloud Platform
- Platform Run By MicroStrategy Cloud Experts
- Rigorous Security Standards
- Access to Cloud Services
MicroStrategy Cloud Support and Services

MicroStrategy experts armed with proprietary tools, proven methodologies, best practices – available annually and on a project basis

Environment Configuration
- Configuration of environment to architectural specifications
- Initial network connections and VPN configuration (including VPN setup, support, testing, and ongoing monitoring)

Environment and Application Optimization
- Increase performance and optimize capacity.
- Capacity Analysis – Baseline and benchmark of architecture and comparison against industry benchmarks. Root cause analysis of capacity and performance challenges
- Capacity Optimization – recommended hardware and architecture optimizations and configuration changes.

Application Development and Deployment
- Application Development services, such as:
  - Application development - Establish a foundation of shared components to speed departmental application development
  - Analytics Foundation - Design the optimal federated enterprise data layer and publish it to Analysts, Data Scientists, Developers, and Architects

Database, Authentication, and Application Integration
- Integration of data from enterprise systems (i.e. ERP, CRM, MRP, HR) and blend with other data sources to build custom analytics and mobility applications
- Design, implement, and optimize an integrated architecture to extend the capabilities of enterprise systems of record
MicroStrategy Cloud Environment: Achieve Rigorous Security Standards at a Fraction of the Cost

Deliver secure analytics with MicroStrategy Cloud Platform in the MicroStrategy Cloud Environment

MicroStrategy Cloud Environment security capabilities:

- GDPR, HIPAA, ISO 27001, PCI DSS, SOC 2 Type II
- 24/7 Monitoring & Support
- Annual Penetration Testing
- Quarterly Service Reviews and Platform Upgrades
- Monthly OS Upgrades & Patches

Service Organization Controls (SOC) over the security, availability, and processing integrity of a system and the confidentiality and privacy of the information processed by the system.

Health Insurance Portability and Accountability Act (HIPAA) designed to provide privacy standards to protect patients’ medical records and other health information.

Privacy Shield is intended for organizations within the EU or US that store customer data and is designed to prevent accidental information disclosure or loss. We had a Safe Harbor designation and we are in the midst of certifying to this newly created policy.

Payment Card Industry Data Security Standard (PCI DSS) is a proprietary information security standard for organizations that handle cardholder information.

International Organization for Standardization (ISO 27001-2) is a security management standard that specifies security management best practices and comprehensive security controls following the ISO 27002 best practice guidance.

General Data Protection Regulation (GDPR) is the protection of all EU citizens from privacy and data breaches in an increasingly data-driven world.
MicroStrategy Cloud Environment Upgrade Experience

MicroStrategy Cloud Environment upgrades are nearly seamless to end-users. Utilizing parallel environments and Services-led workflow testing, the end-user upgrade experience can be simple and fast! The Cloud team is responsible for the environment build, upgrades, and mirrored data migration. Services can lead with program management and application testing. Combined, it relieves customers to focus on business stakeholders, messaging, and new MicroStrategy features.
Cloud Architecture
It All Begins with the Intelligence Server

All MicroStrategy Installations start with the Intelligence Server and Metadata, and Web Application Server.

This hosts Web, Library, Mobile, Office, Hyper, etc.

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Intelligence Server | Web Server | Metadata Storage
**MicroStrategy Cloud Platform**

Architecture – Virtual Servers

**Major Benefits:**
- High Availability
- Global Regions
- Rapid Deployment
- Scalability
- Pay as you grow

**Server Instance**

- **Intelligence Server**
- **Web Server**
- **Metadata Storage**

**Supported OS:**

- Amazon Web Services (AWS)

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MicroStrategy Cloud Platform
Architecture – Virtual Private Cloud

**Server Instance**

- **Intelligence Server**
- **Web Server**
- **Metadata Storage**

**Supported OS:**
- AWS

**Virtual Private Cloud (VPC)**
Your own virtually isolated resources

**Private Subnet – Zone A**
MicroStrategy Cloud Platform
Metadata Database – Database as a Service

Server Instance

Intelligence Server
Web Server
Metadata Storage

Supported OS:

Private Subnet – Zone A

Metadata Instance

High Availability
Pay as you grow
MicroStrategy Cloud Platform
High Availability - Clusters

**Subnet – Availability Zone A**

- **Server Instance**
  - Supported OS: 
- **Metadata Instance**

**Subnet – Availability Zone B**

- **Server Instance**
  - Supported OS: 
- **Backup Metadata Instance**

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**Sync**
MicroStrategy Cloud Platform
High Availability – Load balancing

Subnet – Availability Zone A

Server Instance

Supported OS:

ELB/ALB

Metadata Instance

Subnet – Availability Zone B

Server Instance

Supported OS:

Backup Metadata Instance

Metadata Instance

Supported OS: ELB/ALB
MicroStrategy Cloud Platform
High Availability – File sharing

Subnet – Availability Zone A

Server Instance
Supported OS: AWS

Metadata Instance

File sharing (EFS/NetApp)

Subnet – Availability Zone B

Server Instance
Supported OS: AWS

Backup Metadata Instance

High Availability
Scalability
Total Architecture

- Public Subnet
  - Application Load Balancing
  - Classic Load Balancing

- Private Subnet
  - File sharing

- Network
  - Availability Zone A
    - Server Instance
    - Metadata Instance
  - Availability Zone B
    - Server Instance
    - Backup Metadata Instance
AWS Architecture

VPC
Virtual Private Cloud

Availability Zone A
Elastic Cloud Compute
Relationship Database Server

Availability Zone B
EC2
RDS

Public Subnet

Private Subnet
ALB - Application Load Balancer
ELB - Elastic Load Balancing

Elastic File Share
MicroStrategy Cloud Platform

Architecture

Team

All-in-one system designed for team applications development and sharing.

- ENVIRONMENT COMPONENTS
  - Server
  - Add Developer Instance

Deployment Time Estimate: 20 mins

- AWS Cost Estimate: $210 / month
  - Initial Configuration
  - Select

Contact Sales

Department

Distributed system for department and small enterprise applications.

- ENVIRONMENT COMPONENTS
  - Server
  - Metadata
  - Add Developer Instance

Deployment Time Estimate: 30 mins

- AWS Cost Estimate: $446 / month
  - Initial Configuration
  - Select

Contact Sales

Enterprise

Distributed and redundant system for scalable, enterprise-grade and global applications.

- ENVIRONMENT COMPONENTS
  - Server
  - Metadata
  - Add Developer Instance

Deployment Time Estimate: 60 mins

- AWS Cost Estimate: $1,072 / month
  - Initial Configuration
  - Select

Contact Sales
Department Architecture

Application Load Balancing

Classic Load Balancing

Public Subnet

Availability Zone A

Server Instance

Metadata Instance

Environment Components:
- Server
- Metadata

Add Developer Instance

Deployment Time Estimate: 30 mins
Enterprise Architecture

Application Load Balancing
Classic Load Balancing

Public Subnet
Private Subnet

Availabilty Zone A
Server Instance
Metadata Instance

Availability Zone B
Server Instance
Metadata Instance
Backup Metadata Instance

File sharing
Adding Developer Instance

• **Infrastructure additions:**
  - RDP load balancer in public subnet
  - Virtual server w/ Windows O.S. in private subnet

• **Purpose:**
  - Allows developers to access MSTR tools
Enterprise Architecture and Utility Server

Public Subnet

Private Subnet

Availability Zone A

Server Instance

Windows Utility

Metadata Instance

Availability Zone B

Server Instance

Backup Metadata Instance

File sharing

Application Load Balancing

Classic Load Balancing
Cloud Migration Advisory Overview
Learn how to streamline your migration strategy for optimizing your environment in the cloud.

During the Cloud Migration Advisory, MicroStrategy will provide a blended delivery team to:

• Evaluate your intelligence ecosystem to develop a cloud migration strategy that helps you implement your ideal computing environment

• Outline your cloud requirements, develop your ideal architecture design

Outcomes include:

• A tailored cloud migration strategy that defines how to optimize intelligence ecosystem architecture, infrastructure, performance, and security in the cloud

• A customized cloud roadmap and architecture diagram to help you securely connect to enterprise assets and effectively operate and manage your environment

• Collaborative workshops to analyze your business goals and ensure your cloud migration strategy addresses your challenges
Items to consider for Migration

• Where to deploy your instances
• Network CIDR Range
• Networking connection from the Cloud to your Data Warehouse
• Metadata type – must convert to mySQL or PostGres
• SMTP Server
• Mobile Configurations
• Office Configurations
• Customizations
• License Key Updates
Q & A

Thank you!