The Market Data Cloud: A Blueprint for Adoption

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About Xignite

Making Market Data Easy
• Market Data Management Solutions
• Cloud APIs (DaaS) and Cloud MicroServices (PaaS)

Pioneer in Market Data Innovation
• 2003: 1st commercial REST APIs
• 2008: 1st Cloud Market Data Management Platform
• AWS Advanced Technology Partner

Serve, Scale, Save
• Tech stack to scale, optimize, and lower TCO
• 9B inbound messages a day - 150+ Global Sources
• 9B API hits a day - 2 Trillion YTD in 2019

Who We Serve
• 800+ Global Clients
• FinServ: TIAA, BMO, Blackrock, Stifel, Schwab, etc.
• FinTech: Robinhood, Betterment, SoFi, Square, etc.
12 Years Working with the Cloud

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First commercial REST API for Market Data

API Principles
Jeff Bezos
API Memo

Amazon
First eCommerce API

REST
Roy Fielding dissertation on REST


10+ Years Head Start and Experience
Debunking Cloud Market Data Myths

Cloud can’t support real-time market data delivery

- Leveraging native cloud market data infrastructure with elastic high-performance cache engine can support scaling to single digit millisecond response time. Today we average 20 milliseconds.
- There is inherent latency moving from cloud to application so Low Latency (<microsec.) requirements will not yet be a fit.

Data migration to cloud poses security concerns/exposure

- AWS and other cloud platforms have drastically improved and addressed data security protocol in alignment with best practices across various IT sec standards: SOC1/SSAE16/ISAE 3402 to MTCS.
- Market Data is available in the public domain and does not involve corporate proprietary data nor P&I details.

Cloud will negatively impact performance of data flow

- MicroServices architecture supports ability to flex components to deliver data at scale without impact on performance.
- Dynamic load balancers, intelligent elastic cache, APIs.
- Parse 9B messages/day, 9B API hits/day, 99.99% availability.
The Problem: Legacy

- Legacy Technologies
- Monolithic Architectures
- Database Silos
- Rigid Infrastructures
- Point-to-Point Interfaces
- No Innovation
- No Transparency
- No Control
- High Costs
- Vendor Lock-In

TERMINALS
Front-Office
Wealth Management
Investment Analytics
Trading & Capital Markets
Compliance & Risk
Reporting & Accounting

FEEDS
Mid-Office
Trading & Capital Markets
Compliance & Risk
Reporting & Accounting

FILES
Back Office
Reporting & Accounting

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The Solution: The Market Data Cloud

Enterprise MicroServices
- Open and Emulated APIs
- Decoupled Architecture
- Serverless Infrastructure
- Painless DaaS or PaaS Deployment

PaaS Benefits
- Control & Transparency
- Cost Reductions

DaaS Benefits
- Easy Innovation
- Rapid Time to Market
Monolithic vs MicroServices

**Monolithic**
Interdependent System
On-Premise/Lift-and-Shift
Vendor-Locked
Implosive
Proprietary

**MicroServices**
Decoupled Services
Cloud-Based
Vendor-Agnostic
Infinitely Scalable
All Open APIs
Enterprise MicroServices Examples

- Massively Scalable
- High Performance
- Multi-Asset Class
- Multi-Vendor
- Intelligent Caching

- **Real-Time MicroService**
  - Bar summarization
  - Real-time analytics
  - Feed monitoring

- **Historical MicroService**
  - Corporate actions support
  - Historical stitching
  - Multi-identifier support

- **Fundamental MicroService**
  - Multi data shapes
  - Quality monitoring
  - Derived analytics

- **Entitlement MicroService**
  - Multi-access models
  - On-Demand access
  - Audit reporting

- **Data Lake Microservice**
  - Multi-dictionary support
  - Emulated Legacy APIs
  - Universe management

- **Optimization MicroService**
  - Back-office optimization
  - Predictive pre-fetching
  - Entitlement integration
## Blueprint for Adoption: Key Use Cases

| **Optimize Spend** | Optimize Bloomberg Data License with a Market Data Cloud  
• Tier 1 North American Financial Institution |
|-------------------|--------------------------------------------------------------------------------------------------|
| **Eliminate Terminals** | Eliminate Terminals with a Cloud-Based Market Data Lake  
• Tier 1 Asian Financial Institution |
| **Slash Costs** | Slash Costs by Moving Real-Time Data to the Cloud  
• Tier 1 EMEA Technology Provider |
# Blueprint for Adoption: Key Use Cases

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By the nature of its technology and billing model, Bloomberg Data License provides little control over data and is a high and mostly un-optimized spend area for most firms.
Optimize and Control Bloomberg Data License

1. Emulated Per Security Interface allows quick ROI without disruption.
2. Emulated Bloomberg Excel APIs (BDP, BDH, etc.) increase ROI and help eliminate terminals.
3. Advanced caching and optimization MicroService allows reduction of 20%-40% of spend.
4. Extended reporting and analytics provide detailed transparency and actionable insight over spend.
5. Entitlement controls and Admin Portal empower market data managers to control distribution and spend and enforce compliance.
6. Multi-vendor support lets you integrate and substitute other data vendors over time and further reduce costs.
Emulated File Broker MicroService

Xignite’s fully emulated Bloomberg MicroService makes transitioning and optimizing systems quick and seamless. Only change required is to point to a different set of sftp servers. No hardware or software required. Fully hosted in your cloud account.
The industry’s most advanced optimization MicroService eliminates most redundant and expensive requests.
Blueprint for Adoption

Costs
- Lower
- Medium
- Higher

Efforts
- Lower
- Medium
- Higher

System Impact
- Lower
- Medium
- Higher

ROI
- Faster
- Medium
- Slower
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Firms spend larger amounts of money on reference data sets and terminals, but technical data silos prevent these data investments to be used and shared.
Building a Cost-Efficient Market Data Lake

- **Market Data Lake MicroServices**
  For all reference, historical and master data that updates intraday or end of day:
  financials, fundamentals, estimates, historical prices, performance, analytics, etc.

- **System MicroServices**
  All the services required to manage and control your data distribution and spend:
  user management, authentication, entitlements, usage reporting, etc.

- **Real-Time MicroServices**
  For all reference, historical and master data that updates throughout the day:
  equities markets (level 1 or 2), futures, options, bonds, fx, credit markets, etc.

- **Open Connectors** — Re-use connectors already built or partner with Xignite to build the ones you need.

- **Emulated APIs** — Ease migration by making transition seamless

- **Open APIs** — Ease innovation by making integration seamless

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xignite Market Data Cloud

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**xignite**

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**Digital Channels**

**Enterprise Systems**

**Casual Users**
With the Xignite Market Data Cloud...

Casual users of terminals become users of the Cloud Market Data Lake via our Excel CloudAddIn or via custom apps. Many terminals can be eliminated...

Users and enterprise systems still use the same reliable data source

CloudAddIn

Enterprise Systems

Open APIs

xignite

Market Data Lake

... and up to 40% of reference data spend can be eliminated via consolidation, caching and optimization

Note that cost savings also depend on restrictions imposed in your agreement with vendors. You should always comply with your agreement.

$ Cost Savings $

$ Cost Savings $
How Much Can I Save?

Let's say you eliminate 50 terminals at $24K/year. That's a total of $1,200,000/year.

CloudAddIn

Now let's say that you can save 35% of a $5M annual Reference Data spend by eliminating redundant spend. That is another $1,750,000/year.

Enterprise Systems

$ Cost Savings $

Market Data Lake

$ Cost Savings $

xignite

ANALYSIS
Terminal costs saved $1,200,000
Data licensed saved $1,750,000
Annual cost savings $2,950,000
Cost of Solution $TBD
Cost of Migration $TBD
ROI High
Pay Back Period Under One Year

ADDITIONAL BENEFITS
• Gain control over all your reference data spend
• Achieve savings on all future terminals and data license expenses
• Drive innovation by exposing reference data via easy open APIs
Blueprint for Adoption

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Current Real-Time Infrastructure Problems

- Redundant dedicated connections to sources
- On-premise or hosted feed colocation
- Customized or standard feed handlers
- On-premise messaging infrastructure
- On-premise persistent data storage (tick data)
- Peak usage capacity deployment
- Deployment in multiple geographical locations
- Proprietary interfaces at all integration points
- Hardware and software upgrades
- On-premise operations personnel
How Cloud APIs Take Over Real-Time

Legacy Market Data Distribution

- Low Latency Feeds
- Real-Time Feeds
- Delayed Feeds
- Terminals
- EOD Files
- The World of Low Latency
- The World of Real-Time Data
- The World of Delayed/EOD Data

New Market Data Distribution

- Low Latency Feeds
- The World of Real-Time Data
- The World of Delayed/EOD Data

Cloud APIs
Migration Options

- **Status Quo**: Stick with what you have and hope for the best
- **Legacy Lift and Shift**: Lift your current infrastructure and shift it to the cloud
- **Go Native**: Start deploying a native market data cloud
Go Native

Standard-based APIs make accessing all data via Excel easy.

Cloud-native emulated legacy APIs simplify integration with existing systems and eliminate disruption.

Cloud-native historical tick and bar microservices calculate, store, and serve large amounts of data efficiently.

Cloud-native system microservices provide core functions with maximum elasticity and scalability at lowest cost.

Cloud-native storage and processing handle every data shape efficiently and unify all data sets under one roof.

Massively scalable standard-based Cloud APIs (REST, Server-Side Events, Web Sockets, etc.)

Cloud-native ticker plant microservice can handle hundreds of venues, millions of instruments with high performance and reliability.

Cloud-optimized feed handlers limit network traffic and can use straight internet.

Built-in ops and monitoring ease deployment and management.

Intelligent Caching
Go Native

Deploy native market data cloud on top of existing feeds (e.g. FactSet, TREP, BPIPE, ICE, QuantHouse, SIX, etc.)

Start switching apps to new platform and decoupling them from sources.

**Pluses**
- All OPEX vs CAPEX
- No new hardware or software
- Maximum cost-reductions via use of advanced cloud features (autoscaling, etc.)
- Built-in reliability and redundancy
- Continue use existing data sources
- Emulated APIs to simplify transition
- Limited cost overlap
- Enables long-term vendor switching

**Minuses**
- Not for low latency feeds
- Testing and some integration work may be required when switching applications
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