Performance Matters

Scaling Integration Processes to Meet the Needs of Your Business

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Agenda

- Atoms
- Atoms vs. Molecules
- Atom Clouds
- Atom Workers
- Performance Scenarios

Understanding the Atom

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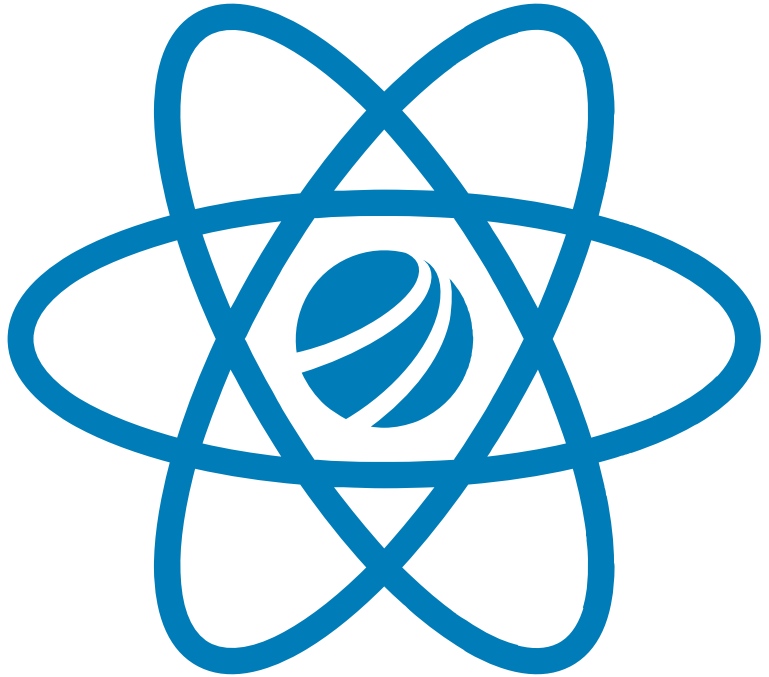
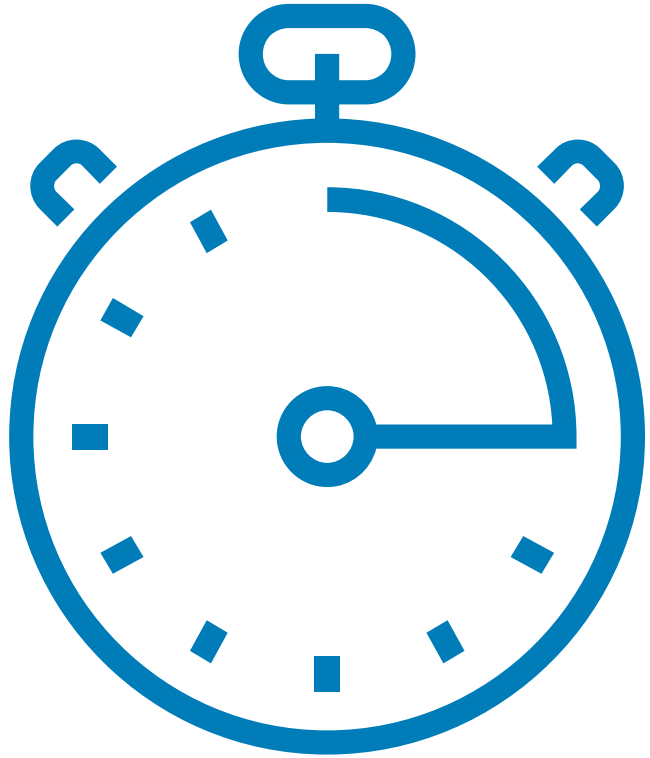
What is an Atom?

- Standalone, lightweight Java program
  - Deployable anywhere supported by modern Java Virtual Machine (JVM)
- Runtime engine for Boomi integration processes
- Single tenant only, single Boomi environment
- Scalable within the bounds of a single machine



Atom Performance

- Bounded by the host machine
- All integration processes executed in single JVM
- Typical integration process performance:



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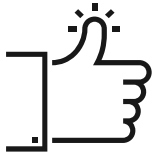
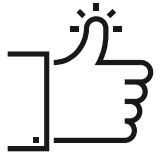
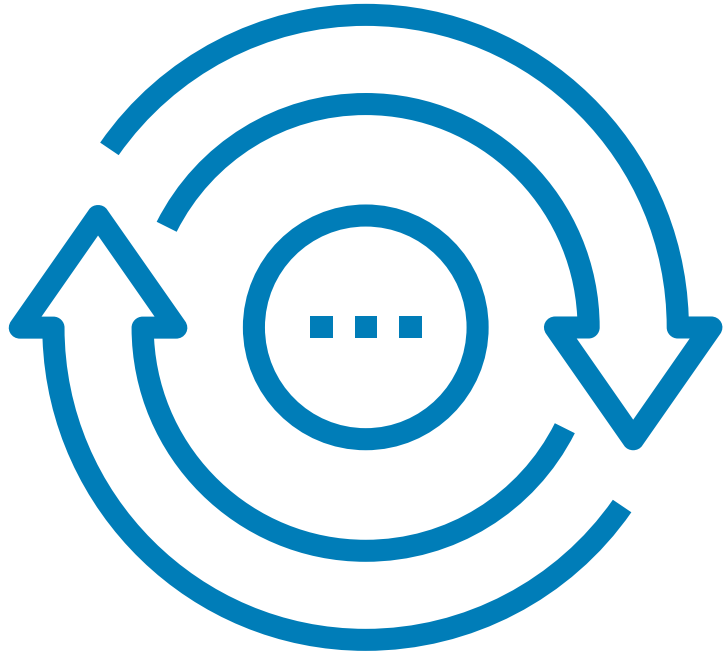
		

highly dependent
on host machine
(CPU, memory, and disk)

Atom Fault Tolerance

- Requires minimal downtime for release restarts
- Badly behaved integration processes can directly affect other processes
- Typical failure scenarios
  - Too many executions (CPU, memory, disk)
  - Too much data (memory, disk)
  - Runaway execution (CPU)



Atoms vs. Molecules

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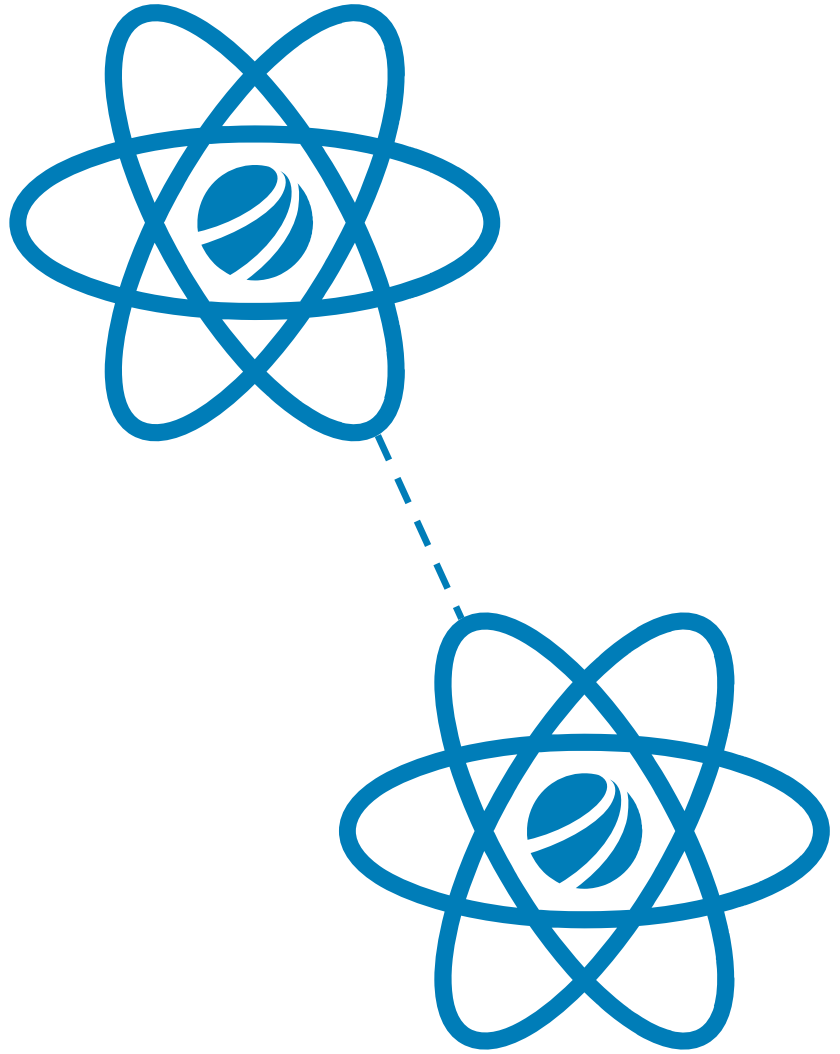
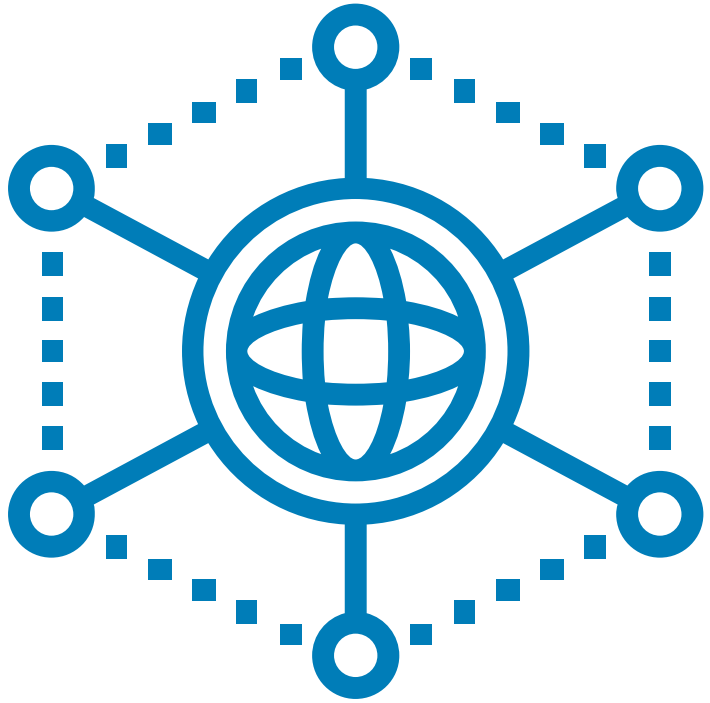
What is a Molecule?

- One or more lightweight Java programs
  - Deployable anywhere supported by modern Java Virtual Machine (JVM)
  - Requires shared filesystem (NFS, Windows File Share)
- Single tenant only, single Boomi environment
- **Scalable across multiple machines**



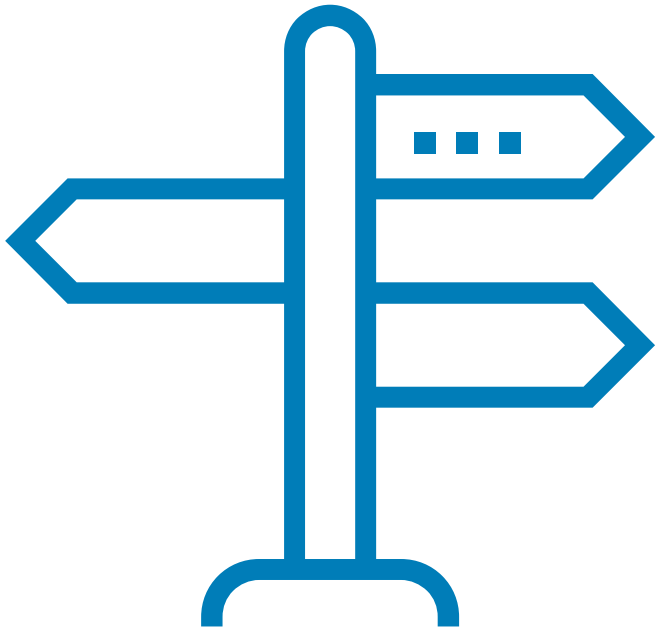
Molecule vs. Atom

- Better scalability
  - Workloads distributed across multiple machines
- Better fault tolerance
  - Rolling restarts for zero downtime
  - Failure of a single node only affects executions on that node
- More complex administration
  - Requires shared file system
  - Requires appropriate intranet configuration



Molecule Selection Decision Points

- Do I require zero downtime?
  - Serving production APIs
- Do I have too much work to do?
  - A single machine is not enough
- Can I support it operationally?
  - Added installation and maintenance complexity



Atom Clouds

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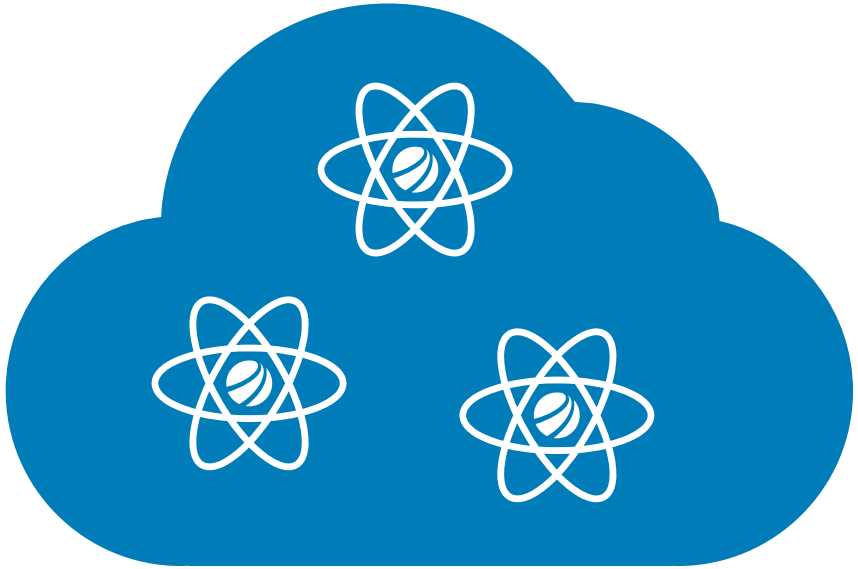
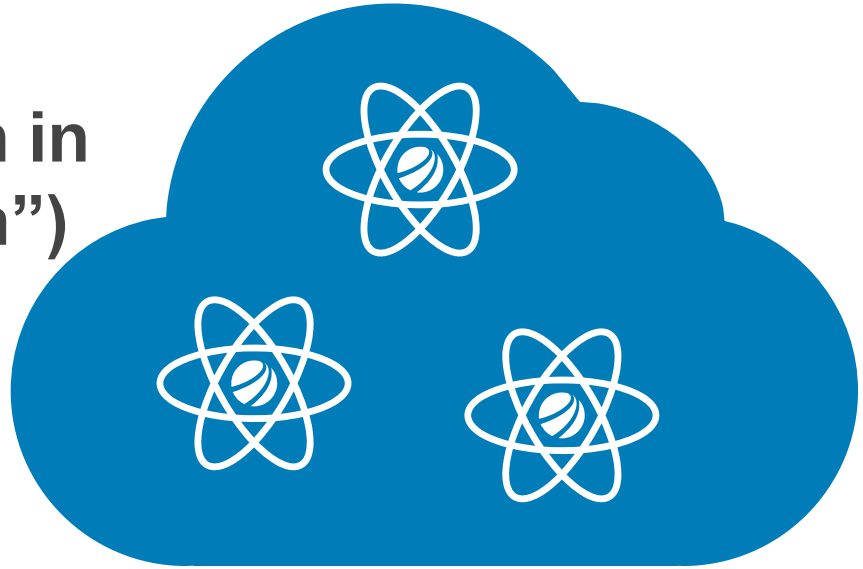
What is an Atom Cloud?

- One or more primary Java programs with many secondary Java runtime instances
  - Requires modern Windows or Unix/Linux variant
  - Requires shared filesystem (NFS, Windows File Share)
- Multi tenant only
- Multi Boomi environment (one per tenant)
- **Scalable across multiple machines and multiple Java runtimes**



Atom Clouds… wait, what?

- One or more primary Java programs *with many secondary Java runtime instances*
- **All integration process executions happen in secondary JVMs (a.k.a. “Forked Execution”)**
  - One primary process execution per JVM
    - High fault tolerance… at a cost (JVM startup time)
    - What about real time executions? (more on this later)



To Host or Not to Host?

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- Zero maintenance for you!
  - The true cloud experience
- Best Scalability
  - But not infinite - aiming for the 80%

Private Atom Clouds

- More operational complexity
  - Requires experienced IT personnel
- Best Scalability
  - Tuned to your workloads

Atom Workers

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What is an Atom Worker?

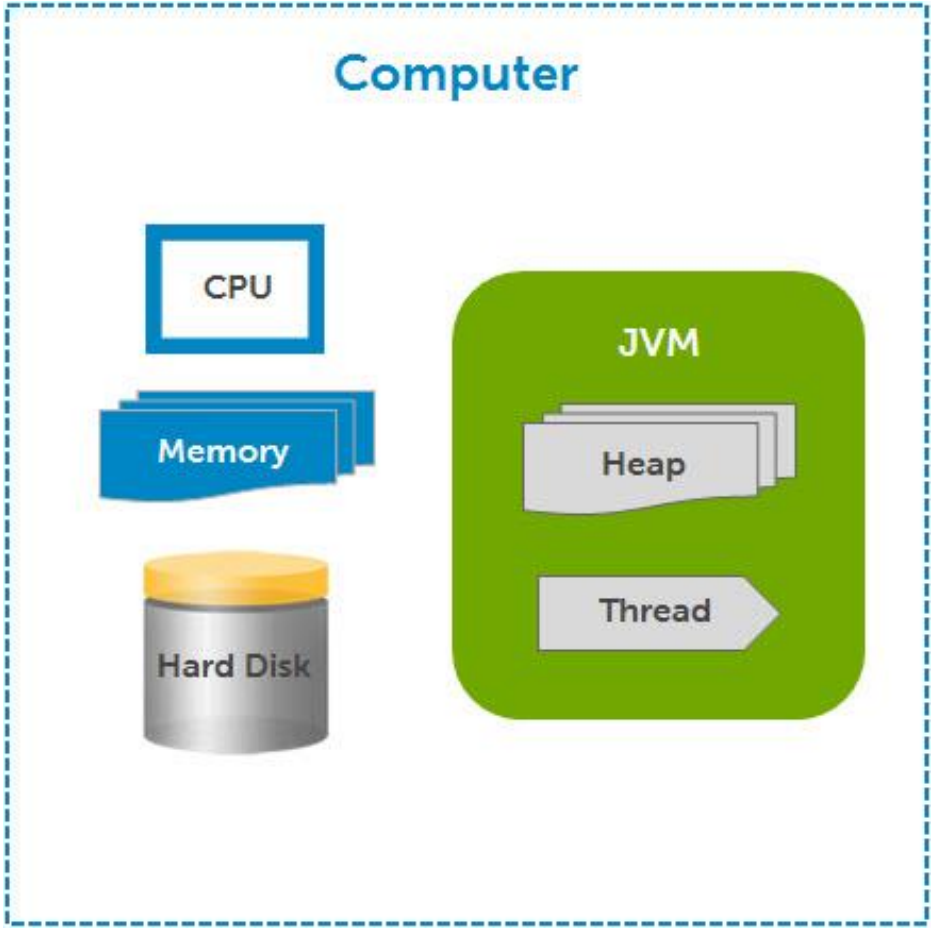
- Atom Cloud feature only
- One or more secondary JVMs per tenant
- Handles multiple primary process executions
- **The answer to real-time performance in an Atom Cloud**

Performance Scenarios

The Building Blocks

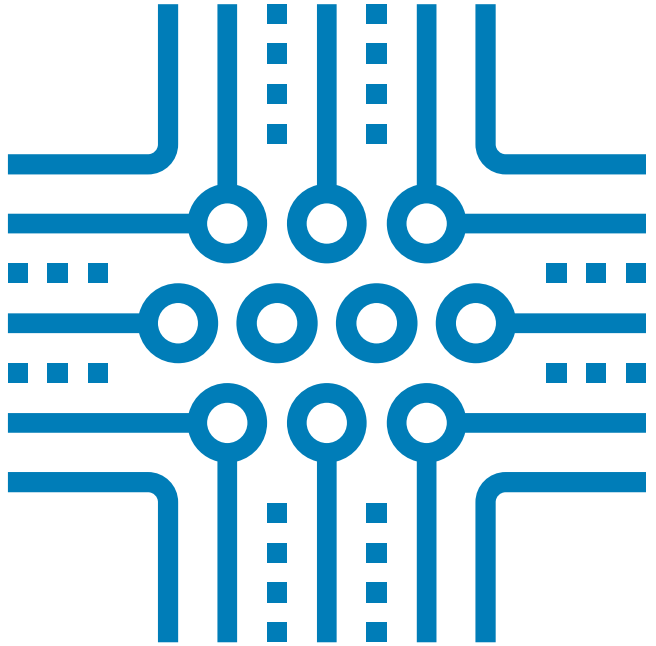
- CPU
- Memory
- Hard disk
- JVM, with heap space and thread(s)

The Performance Killer: Scarce Resources



Lots of Process Executions

- Contended resource: **CPU**
  - Best: multiple computers (molecule/cloud)
  - Also good: More CPUs per computer
- Contended resource: **Memory/Heap**
  - Good: More heap per JVM
  - Good: More memory per computer
  - Good: Multiple computers (molecule/cloud)



Lots of Documents, Big Documents

- Contended resource: **Hard Disk**
  - Good: More disk
- Contended resource: **Memory/Heap**
  - Same as last slide
- Contended resource: **CPU**
  - Good: Small documents
    - Flow control, multi-threading
  - Good: BIG documents
    - Flow control, multi-process (molecule/cloud)

Wrapping Up

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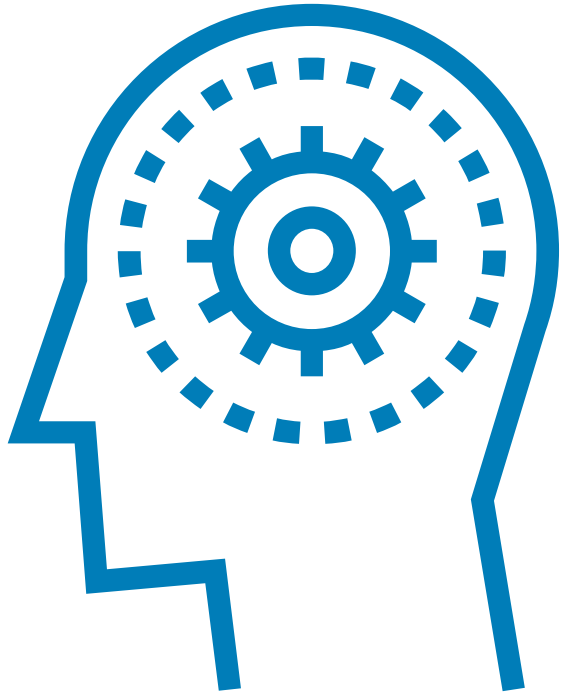
Key Takeaways

- There are a lot of different options available to meet your integration performance needs
- One size does not fit all…
- But Boomi has all sizes!
  - Boomi can handle a wide range of performance and scalability requirements



Further Reading

- AtomSphere User Guide
  - Atoms, Molecules, and Clouds: Getting Started
  - Atom, Molecule and Cloud Setup Guide
  - High-Volume Troubleshooting
- Boomi Community
  - Atoms, Molecules, and Clouds: Pros and Cons (Feb 2017)

Connected Business with Boomi Webinar Series

WEBINAR 1

Boomi Basics:
Going Beyond Integration with APIs, Data Management and Workflow Automation

WEBINAR 2

Mobile Application Development:
Creating Modern, Engaging Customer Experiences

WEBINAR 3

From Integration to Synchronization:
Using a Hub-based Approach to Ensure Data Integrity across Your Business

WEBINAR 4

Integration, APIs and Workflow:
Extending the value of your Salesforce Investment

WEBINAR 5

7 Habits of the Successful Boomi Developer

WEBINAR 6

Managing Your B2B Transactions in the Cloud

WEBINAR 7

Performance Matters:

Scaling integration processes to meet the needs of your business

Wednesday, April 25th

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Questions?

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