

# ExLibris Rosetta

Electronic Records Scalability:  
**Moving From Theory  
to Practice with  
Actual Test Results**

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# Introduction

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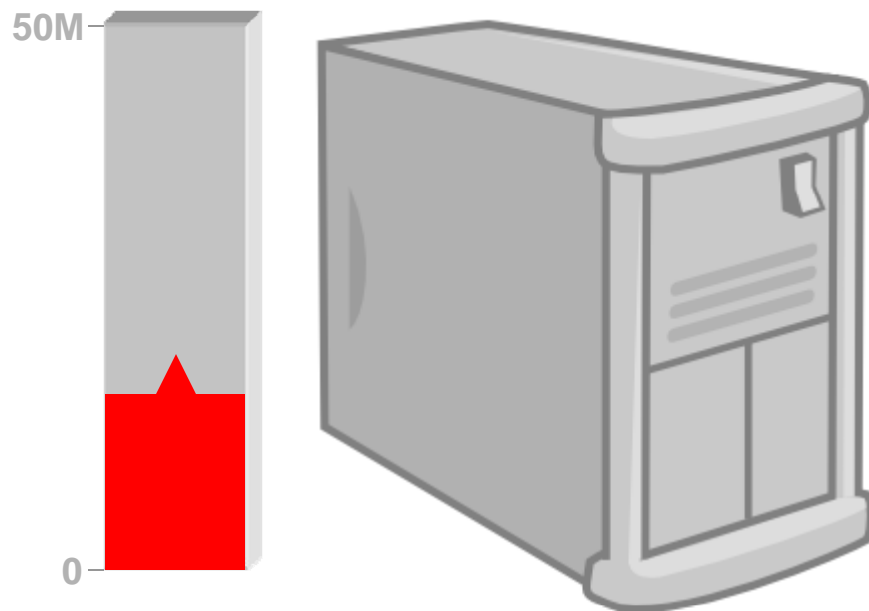
- Technological proof-of-concept to determine the Rosetta digital preservation system ability to scale up to hundred of millions of records and meet the customer's requirements



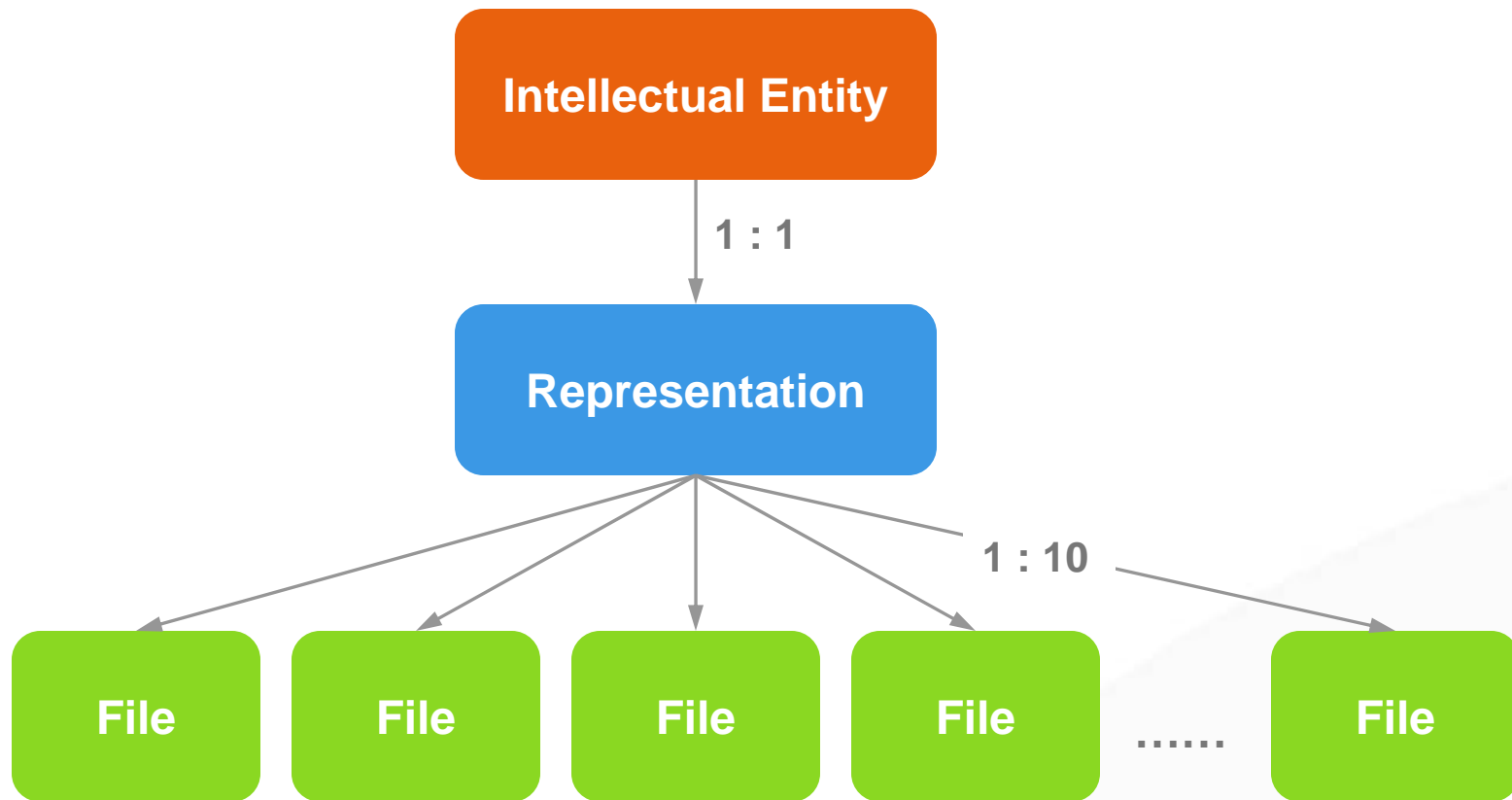
# Objectives - Volume

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- 50 million records on a single database instance  
(delete actual files in order to save disk space)



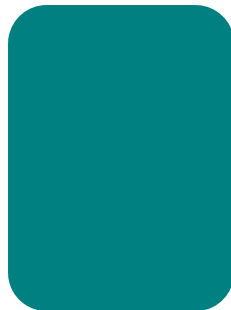
# Basic Intellectual Entity Structure



# Objectives - Throughput

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- **Ingest** – 200,000 files in less than 24 hours using a single application server
- **Delivery** – End user delivery of 100KB image file in less than 3 seconds using a single application server
- **Search** – Use set management to create a 1000 file set
- **Process Automation** – Run maintenance task on the created set (fixity check, thumbnail creation)



# Objectives - Shards

Deposit

Delivery

Shard 1

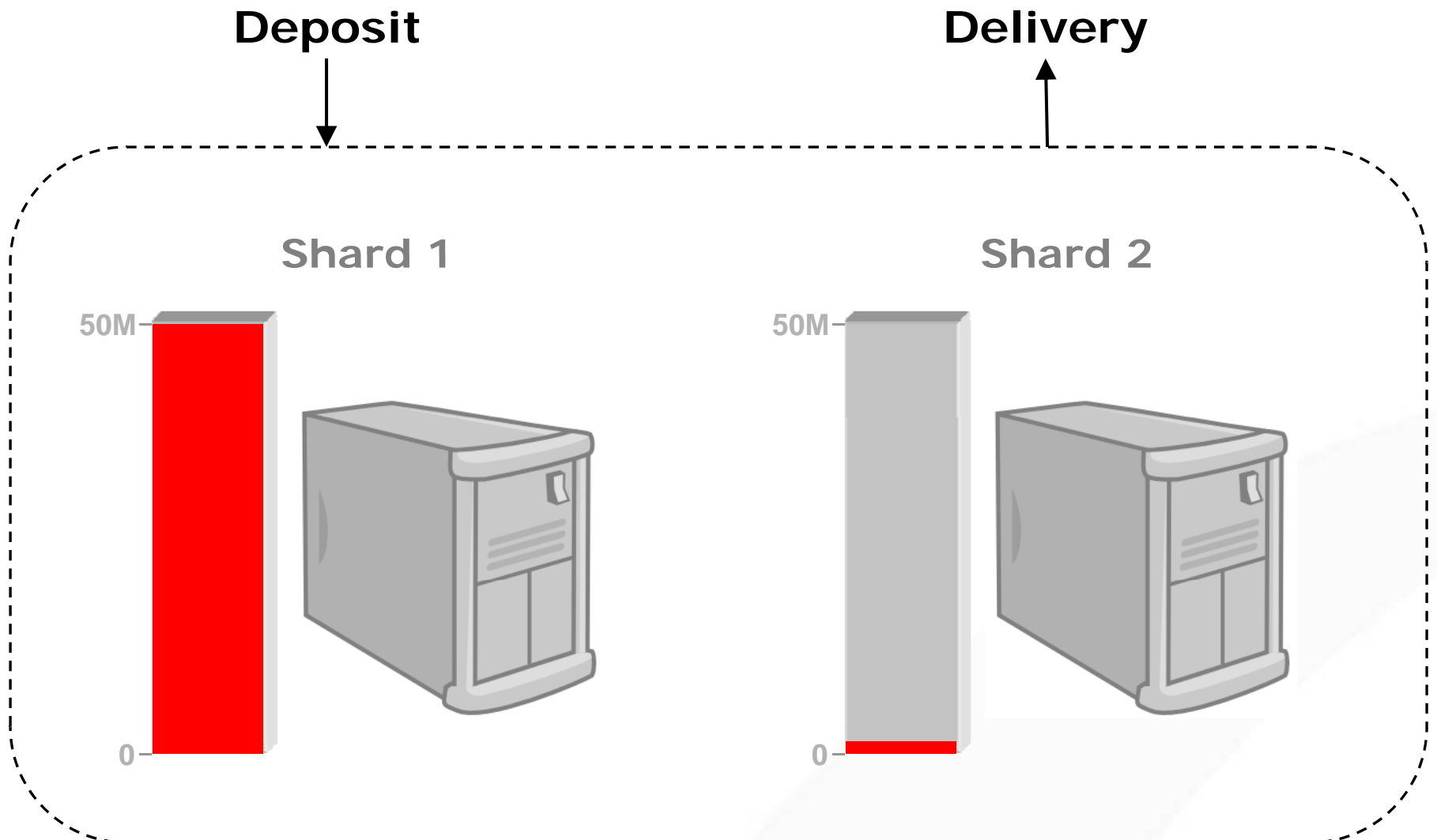
Shard 2

50M

50M

0

0



# Objectives - Shards

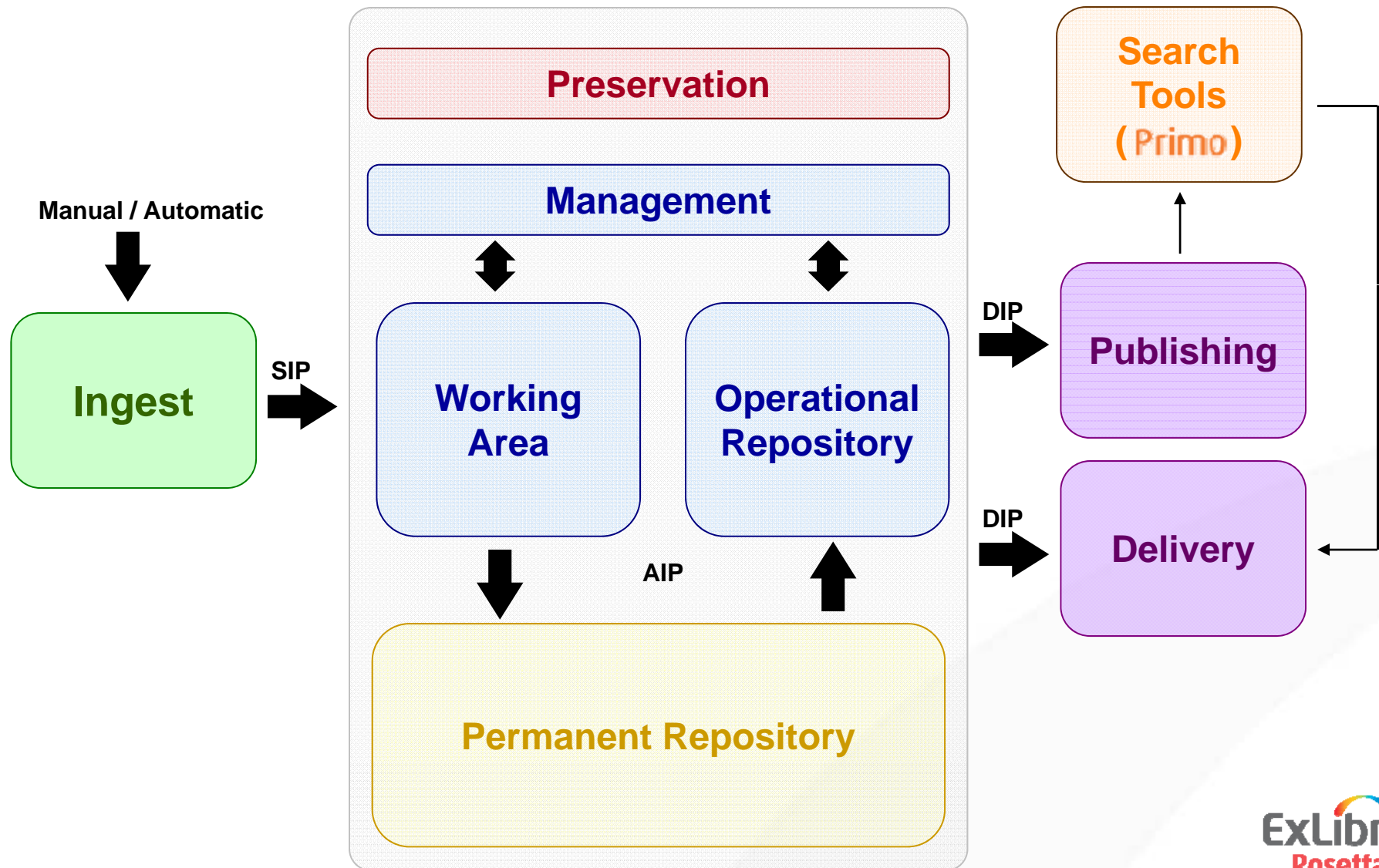
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- Show shards capabilities for both:
  - Deposit
  - Delivery
- Every ingest will be routed to a shard using configurable routing rules
- Delivery will be based on the record id for all record types (intellectual entity, representation, file)





# Rosetta Modules

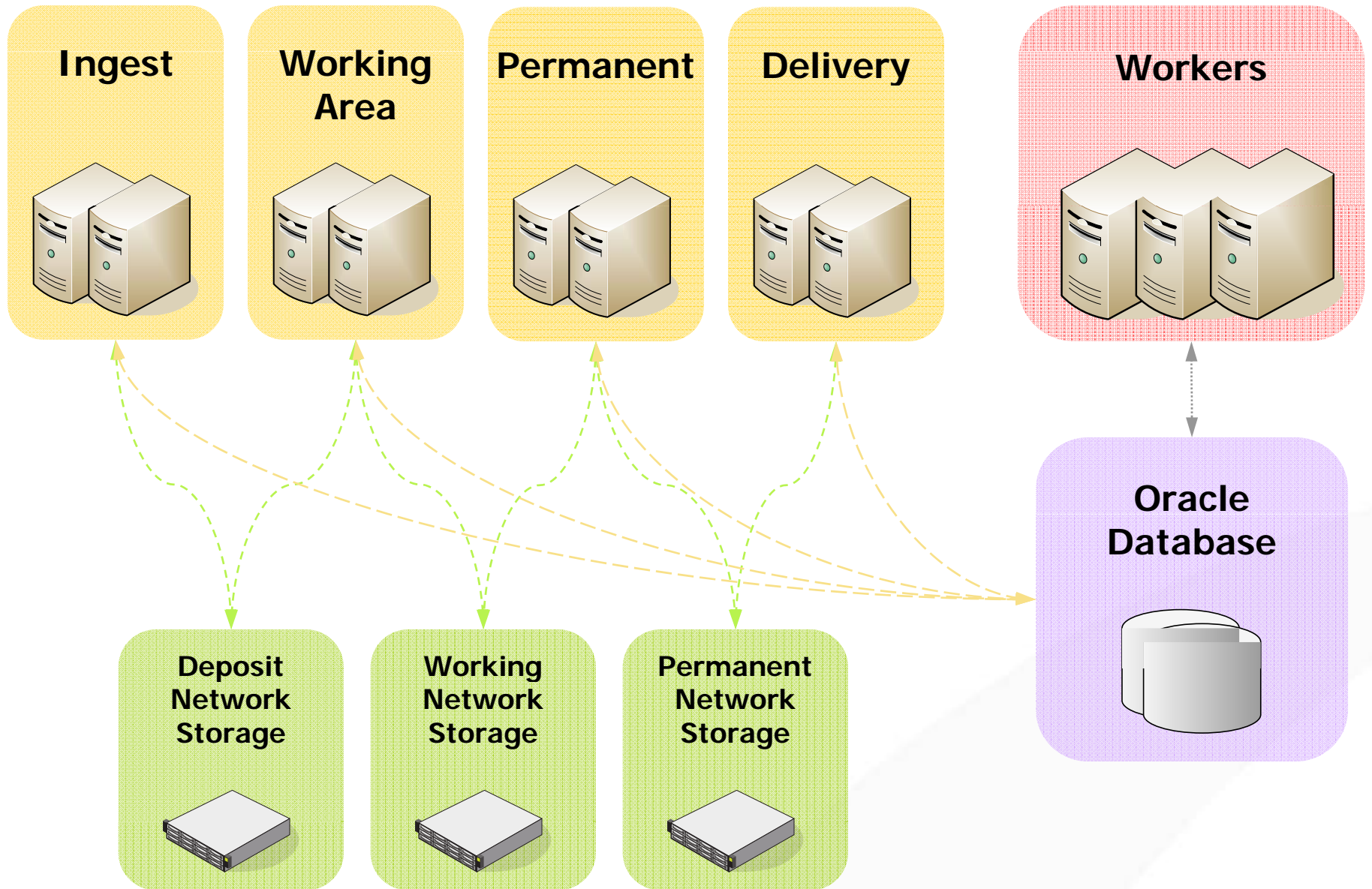


# Scalable

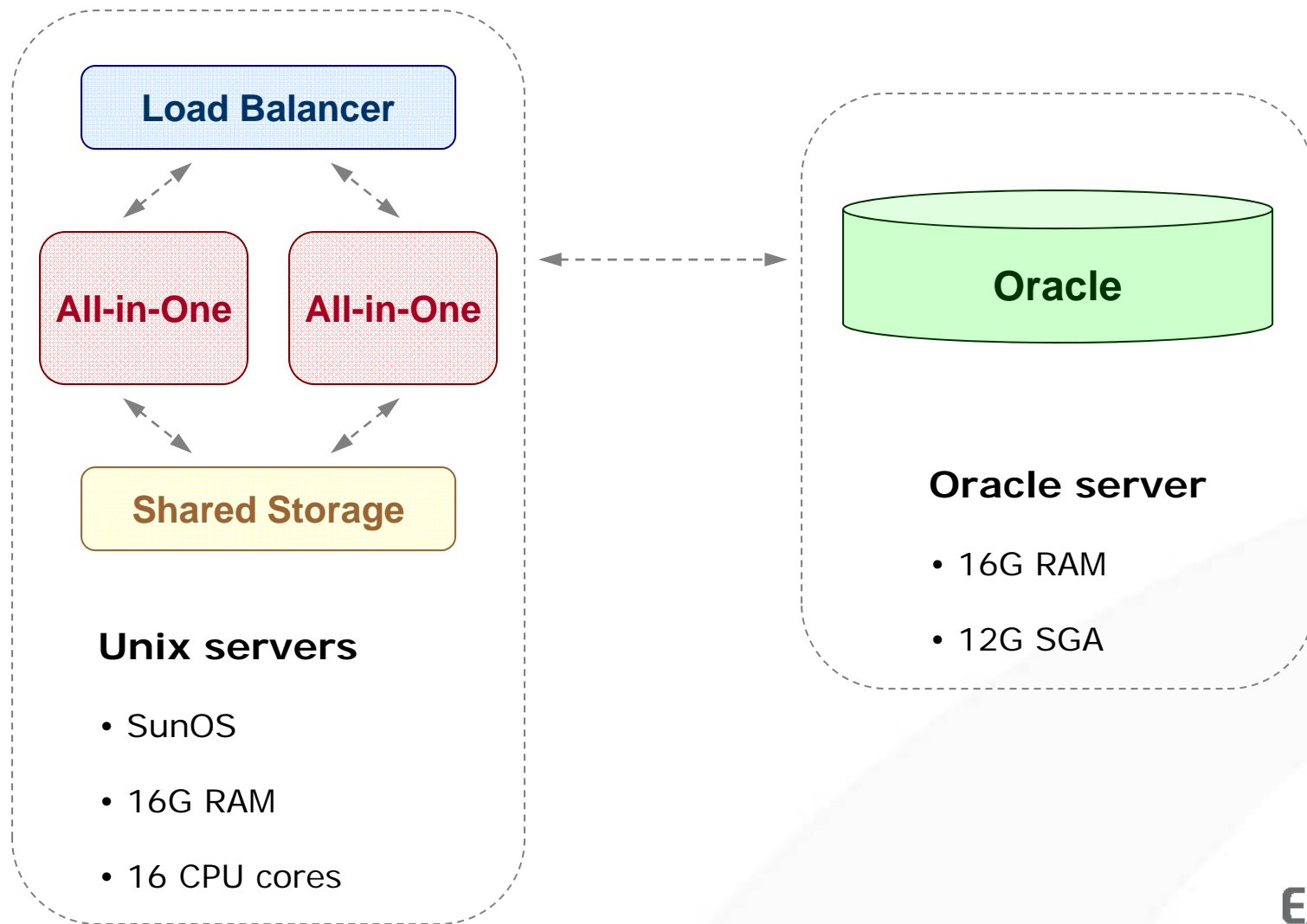
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- Manages tens of millions of objects, petabyte of storage
- Supports ingest of and access to hundreds of thousands of objects per day
- Scalable both vertically and horizontally
- Deployed in a distributed manner
- Has no single point of failure; all software components are redundant





# Execution Environment Diagram



# Baseline Results

Total Files	File Size	Time	Comments
200,000	10 KB	<b>4:46</b>	Run #1
200,000	10 KB	<b>4:05</b>	Run #2
200,000	10 KB	<b>5:40</b>	Run #3
200,000	100 KB	<b>5:08</b>	Run #1
200,000	100 KB	<b>4:39</b>	Run #2
200,000	100 KB	<b>4:49</b>	Run #3
50,000	10 MB	<b>16:12</b>	Run #1
50,000	10 MB	<b>16:16</b>	Run #2
1,000	500 MB	<b>11:55</b>	Run #1

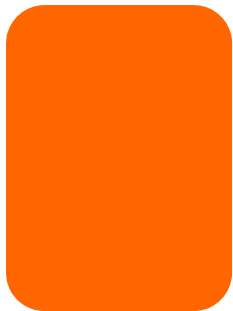
# Volume Environment Results

Total Files	File Size	Time	Comments
200,000	10KB	5:18	Run #1
200,000	10KB	4:55	Run #2
200,000	100KB	5:10	Run #1
200,000	100KB	5:29	Run #2
50,000	10M	13:25	Run #1
1,000	500MB	13:48	Run #1

# Conclusions and More

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- Exceeded initial objectives
- Near linear scalability  
(more app servers you add more computing power you get)
- Further explore the limit of a single Rosetta instance
- Extending scalability and performance tests on Amazon Elastic Compute Cloud (Amazon EC2)





# Thank You!

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