Multidomain MDM

MDM Environment scaling through HA and DR setup

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- The session will include a webcast and then your questions will be answered live at the end of the presentation
- All dial-in participants will be muted to enable the speakers to present without interruption
- Questions can be submitted to "All Panelists" via the Q&A option and we will respond at the end of the presentation
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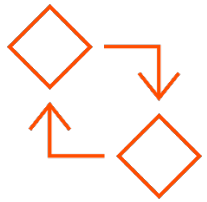

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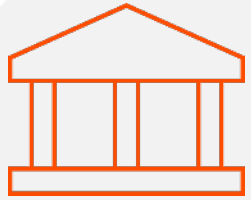

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Agenda

- Overview
- MDM High Availability Solutions
- ActiveVOS and Process Server
- Infinispan clustering for High Availability (HA)
- Clustering – Elastic Search
- HA requirements for SIF, E360, REST
- JMS and EJB Clustering
- Introduction to Disaster recovery
- Best Practices

Overview – MDM High Availability(HA)

- HA provides maximum flexibility to access the MDM services without much interruption.
- It’s setup helps preventing unplanned downtime. It helps to recover from failures in application components and system wide failures.
- It helps in meeting business load requirements through environment scaling and multi node setup.

MDM High Availability Solutions

1. Non Distributed HA
2. Distributed HA
3. Zero Down time

Non-Distributed HA - Architecture

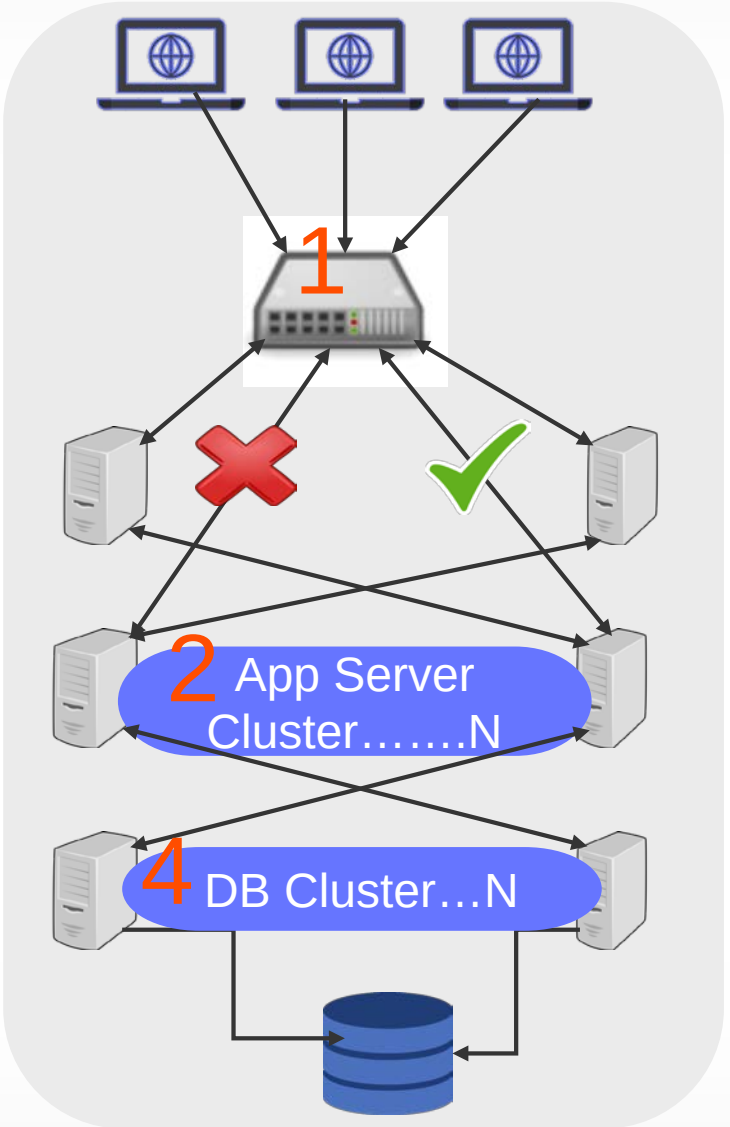
1. Load Balancer
2. Multi node setup
3. Support Continuous Ops when Node failure
4. DB cluster for HA

Pros

- Cost effective
- Easy to setup
- Commonly used Architecture

Cons:

- LAN/Network Failures possible
- DR not possible through this solution



Network LB and Failover

Web App

Custom Services

Hub & Process Server

Hub Store

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Distributed HA - Architecture

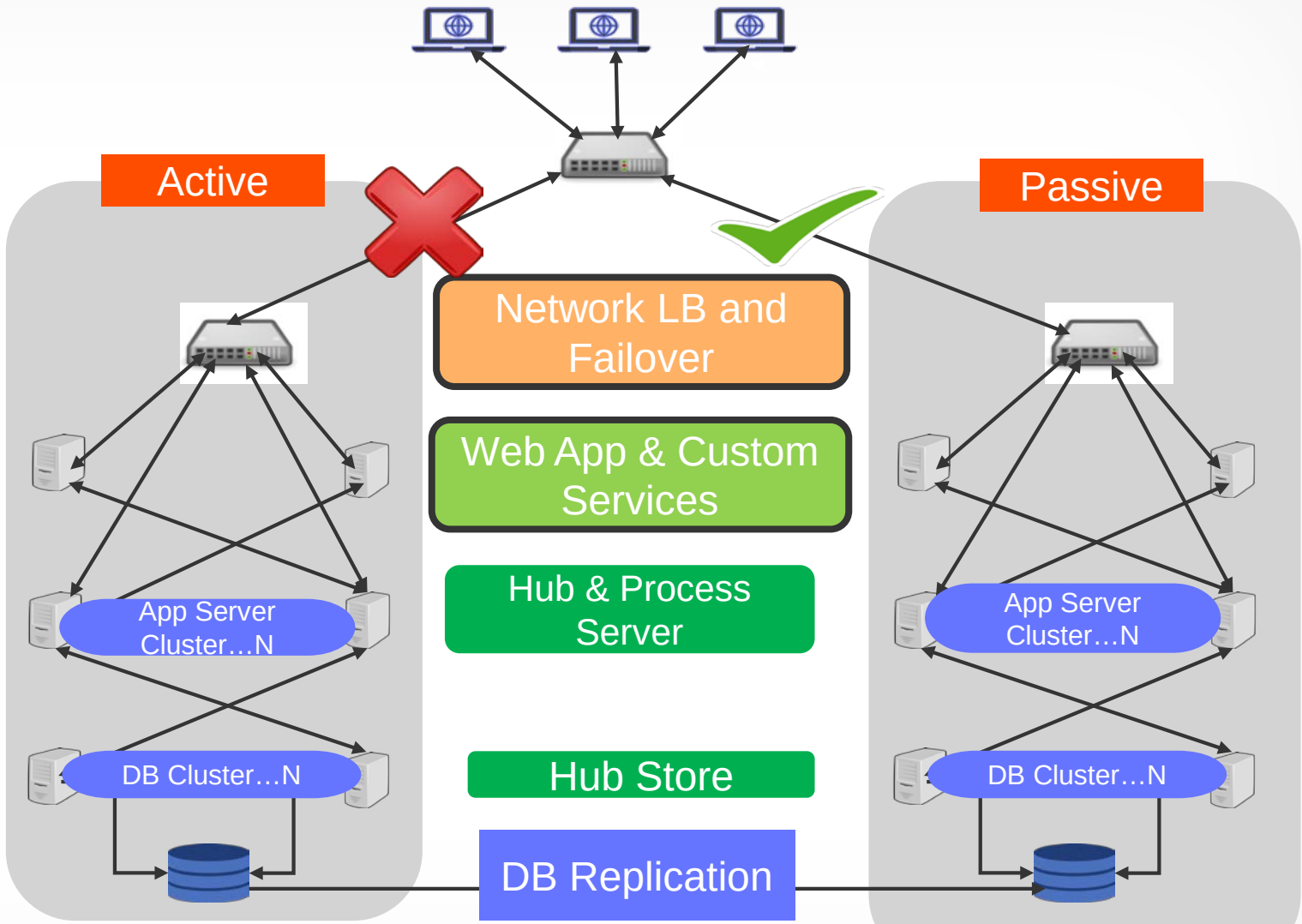
1. DB Replication required
2. Supports HA even during physical failures
3. Active-Passive

Pros

- Handles Network Failures
- Ideal setup for DR

Cons:

- High Cost
- High Maintenance



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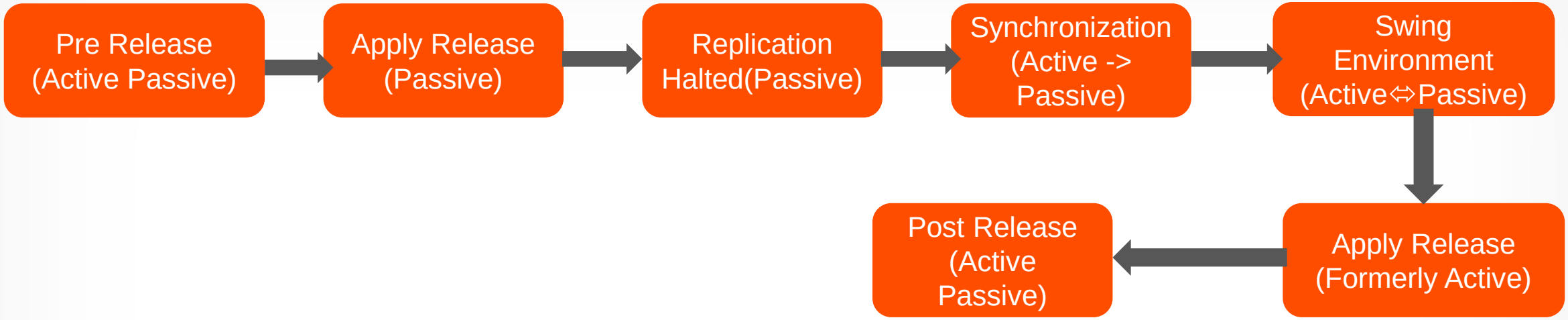
Zero Down time



- Supports continuous Ops during planned downtime
- Active-Passive(Distributed HA) Architecture
- Oracle Golden Gate – Required to manage data replication between environments

Pros :

- Useful for Mission critical apps

Cons :

- Very high cost
- High maintenance
- Not available for SQL Server

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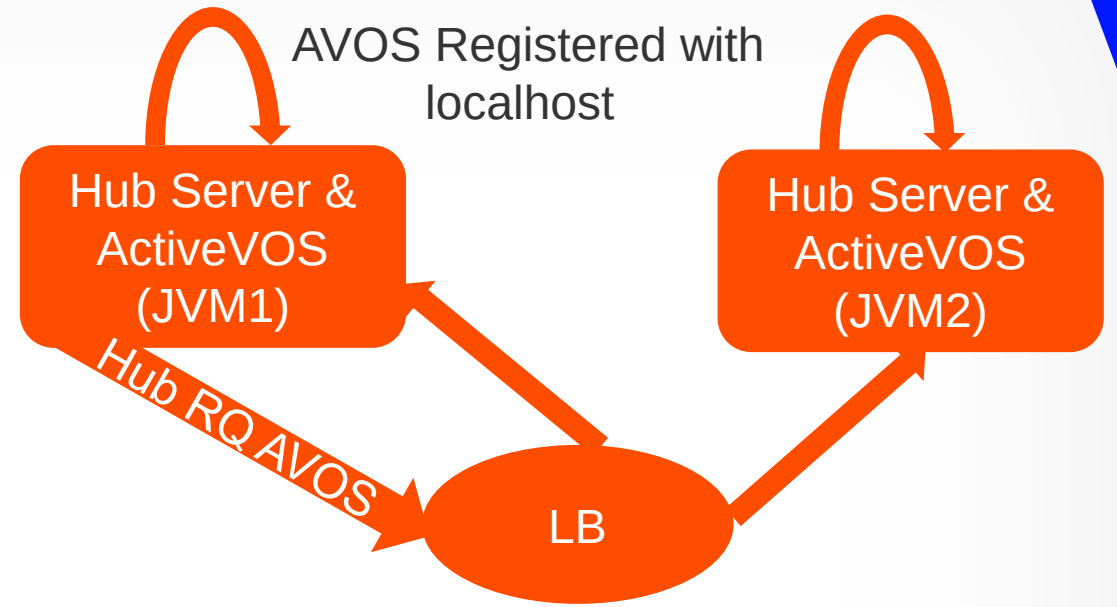
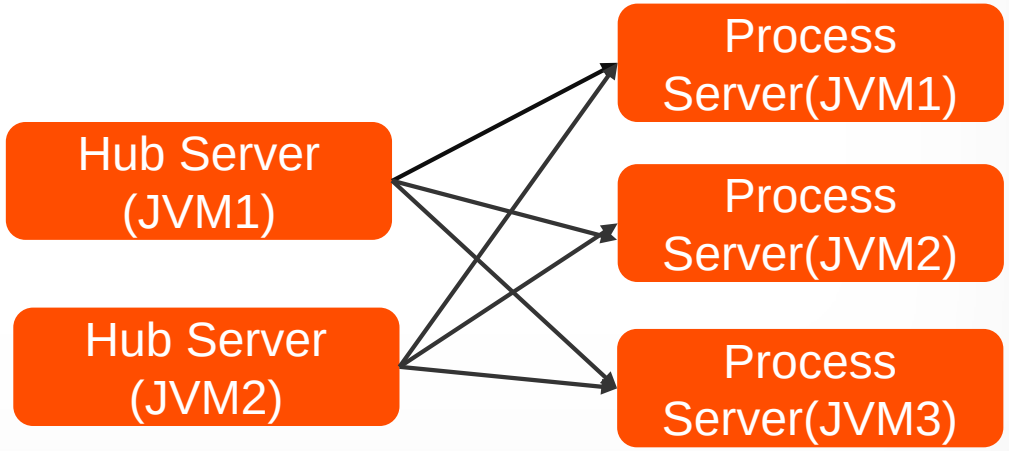
MDM Components

- ActiveVOS and Process Server
- Infinispan
- Elastic search
- SIF/REST
- E360
- JMS & EJB

ActiveVOS & Process Server

- ActiveVOS HA
  - Register workflow with localhost
  - Register workflow with LB(If localhost not allowed)
- Process Server HA
  - Requires registration of all Process Servers(In Hub Console)
  - Hub Server Internally Load Balance requests across Process Servers
  - No need of LB between Hub and Process Server





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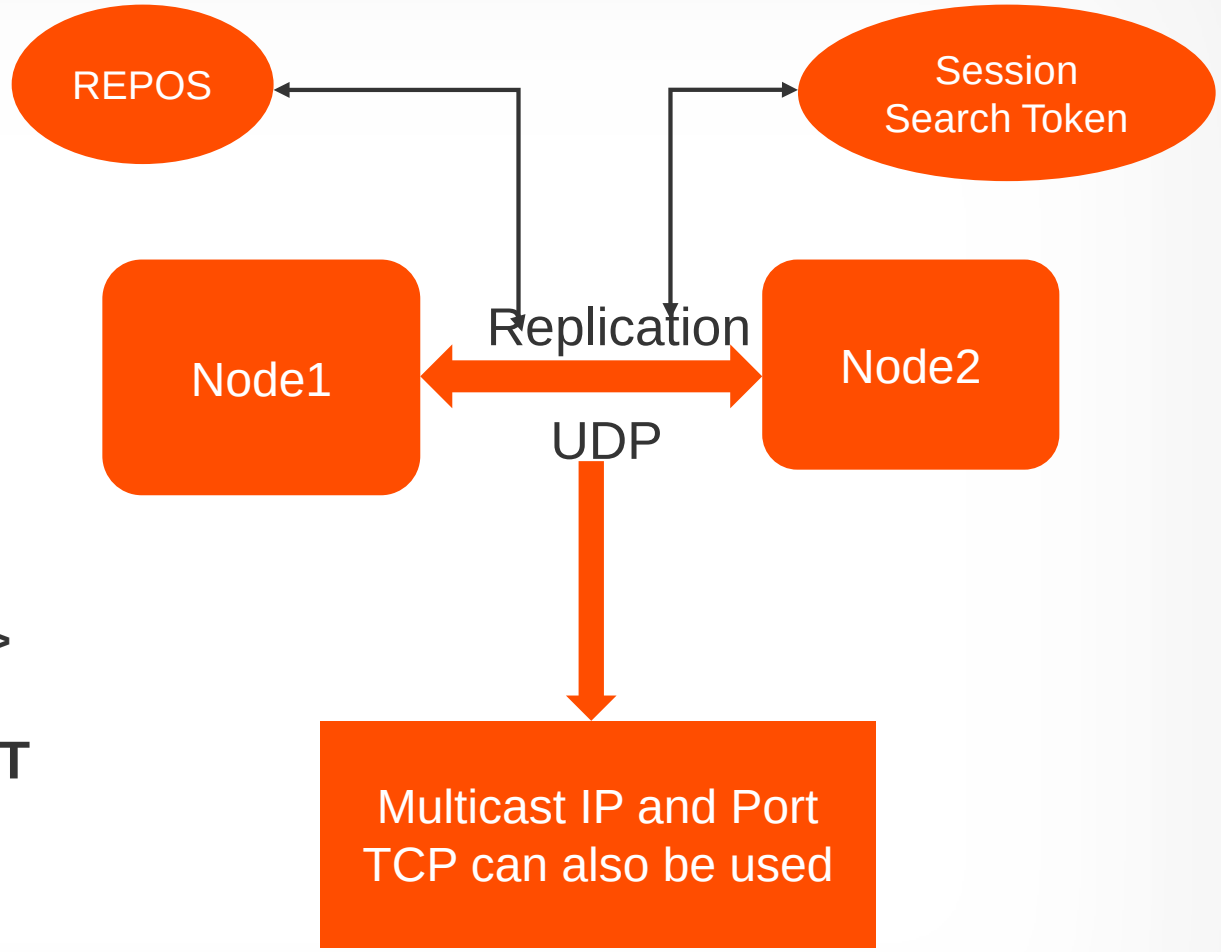
Infinispan Clustering

- Replication
  - REPOS CHANGES
  - Runtime Information
    - SESSION MANAGEMENT
    - SEARCH TOKENS
- UDP – Multicast IP and Port.
- Clustername(To identify nodes of same cluster)

  <CacheName>_<DatabaseHost>_<MasterDatabaeName>
- Database Host(cmx_system) ≠ **LOCALHOST**

  Should be Database server hostname or IP



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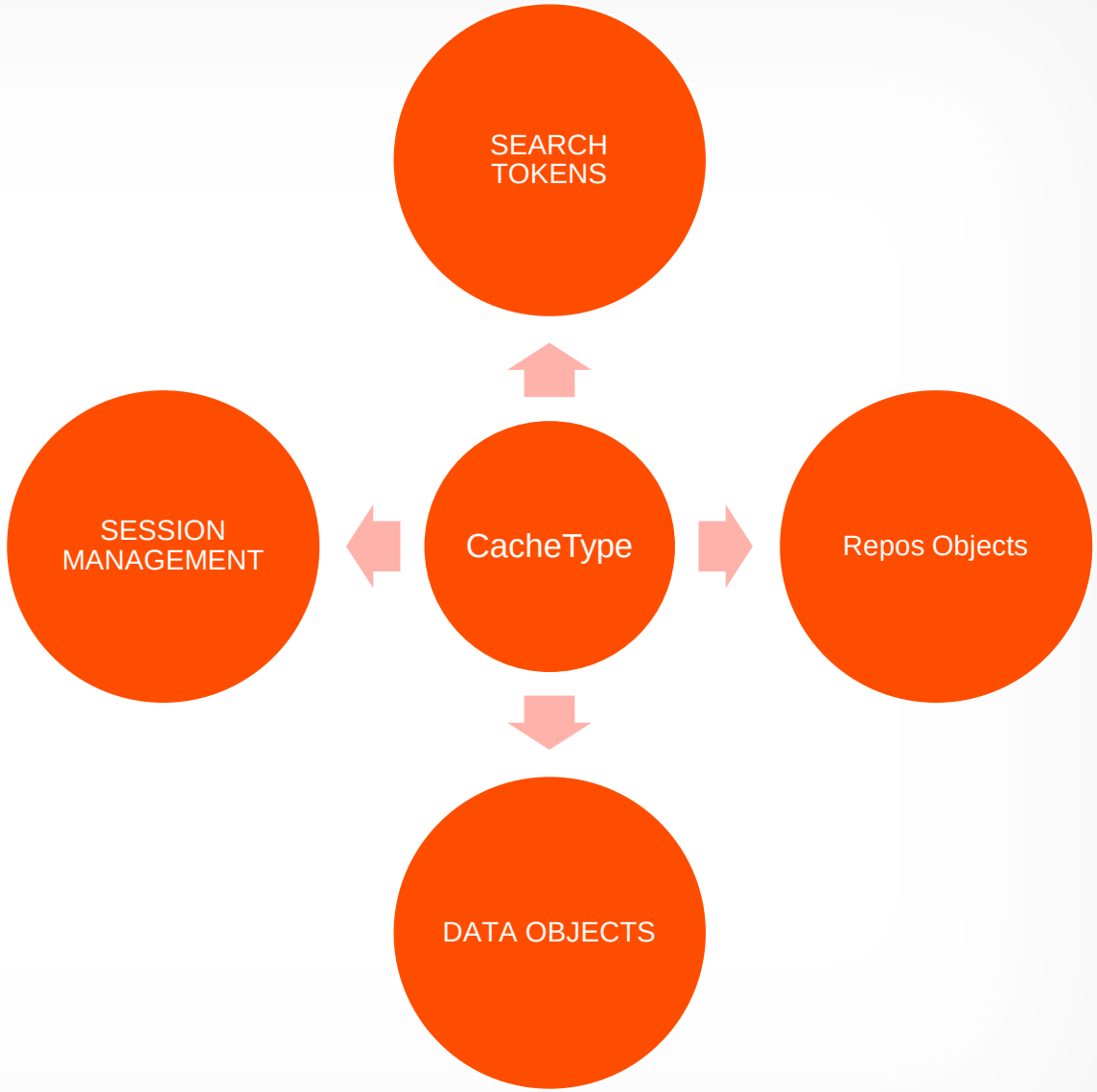
Infinispan Clustering Contd.

- Replicated cache SYNC mode
- Region Wise Cache(to store different info)
  - REPOS_OBJECTS region – Stores Repos Information like tables, columns etc.
  - DATA_OBJECTS region - Information like SamResources, Hierarchy Type etc.
  - SESSION MANAGEMENT – Stores user session info
  - SEARCH TOKENS – stores search tokens for pagination functionality(SIF/REST)



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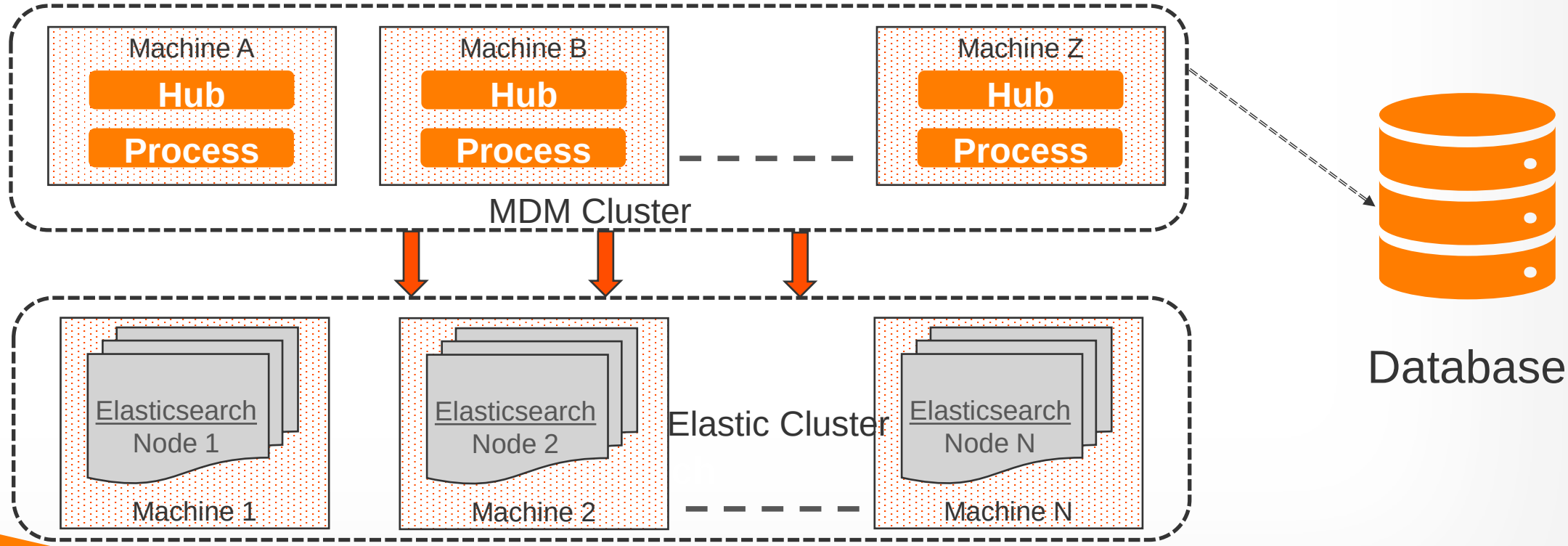
Clustered ES in multi-node MDM

- High Volume Systems with Frequent Loads, Heavy API usage and E360 Searches.
- N should always be an Odd number(To avoid Split Brain)
- Minimum active nodes should be (N/2) + 1 for ES HA
  - For 3 Node ES cluster, 2 should be active at all times
  - Requirement of ES



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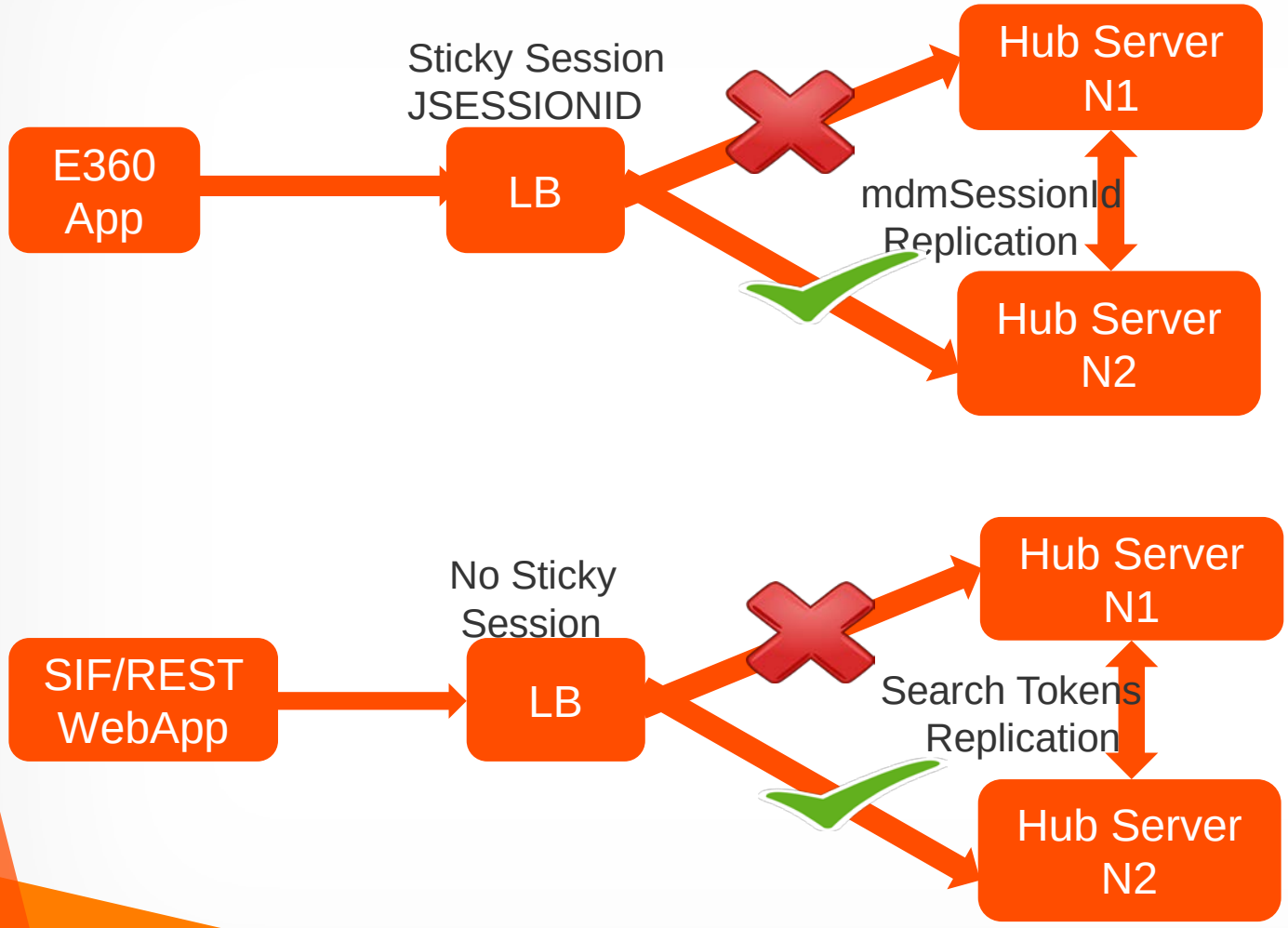
E360, SIF, REST HA requirements



- **E360 Application**
  - Load Balance(LB) - Required for HA
  - One node goes down
    - LB useful for failover
    - Requires user relogin
    - Uncommitted changes needs to redone
  - Enabling Sticky session required
- **SIF, REST based custom application**
  - LB – Required for HA
  - No Sticky session(to avoid all requests going to same node)
  - Application should implement retry logic if node goes down after request sent

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EJB, JMS Clustering

- **EJB Clustering**
  - HA for EJB calls -> MDM
  - Comma Separated URL(Failover)
  - Configuration at App Server
  - MDM Config, jboss.cluster => true, postinstall/repackage.
- **JMS Clustering**
  - Publish message => Outbound queue
  - HA for Message Consuming App
  - Configuration at App Server

Disaster recovery(DR) - Introduction

- Follows Distributed HA Architecture.
- Passive instance - Geographically distant location.
- Setup to recover - Complete failure in Active instance.

Below configuration required during DR steps :

- CMX_SYSTEM.C_REPOS_DATABASE(Database specific information)
- <ORS_NAME>.C_REPOS_DB_RELEASE(Database specific information)
- Datasource configuration(In App server)
- Cmxserver properties(Hub server installation)
- build.properties(DB URL, Host and port of avos, MDM server)

Disaster recovery(DR) Contd.

- setSiperianEnv.sh(**Server and clustername**)
- Copy Certificates(from **<HubServer>/resources/certificates**)**(Active -> Passive)**
- Copy Certificates(from **<ProcessServer>/resources/certificates**)**(Active -> Passive)**
- Repackage EAR files and redploy.

Best Practices

- **Avoid Split Brain scenarios**
  - ES cluster : Avoid by usage of odd number ES nodes
  - JMS, Infinispan cluster : Avoid by usage of odd number MDM nodes
- **Infinispan** – Use different set of Multicast ports for different Environment to avoid network traffic.
  - For example QA nodes will have different multicast port than Prod nodes
- Recommend to perform the Metadata Changes during downtime and restart the nodes(In Prod).
- SIF / REST calls using paging ensure search tokens are replicated. If the requirement cannot be controlled to a single node.

Thank You

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