

*OptiRec*

# Technical Overview

Version 1.0  
2015

a  Data  
Soft

# Application Components

## ❖ **Broker**

- **Manages client connectivity and distributes work load across multiple nodes**
- **Performs API authentication**
- **Handles requests, responses and error messages**

## ❖ **Worker**

- **Processes requests and responses**
- **Communicates with data storage**
- **Validates data for integrity**
- **Maintains data cache for fast access**

## Application Components (cont.)

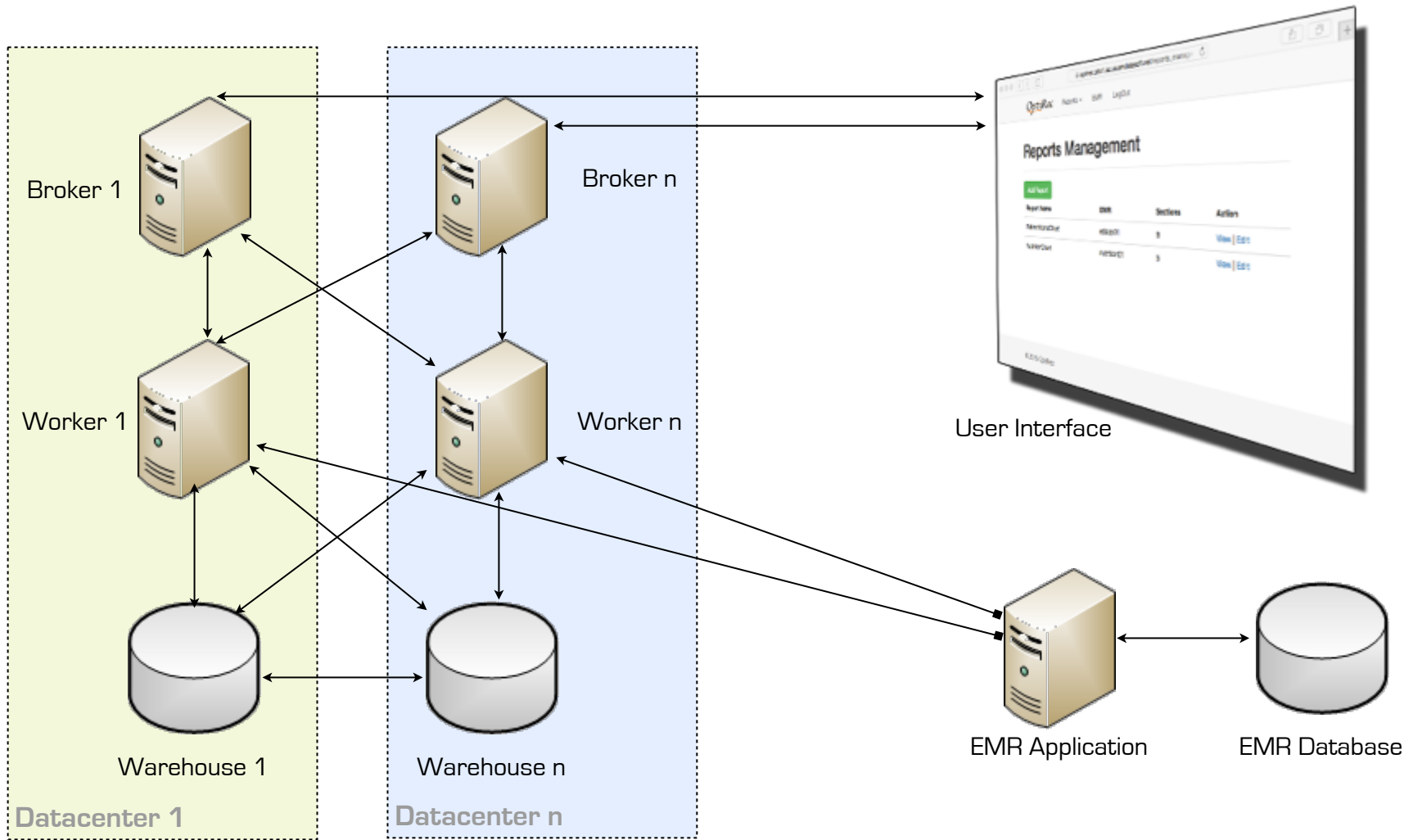
### ❖ Warehouse

- Stores EMR and report configurations
- Stores report data for selected patients
- Distributes data for high availability

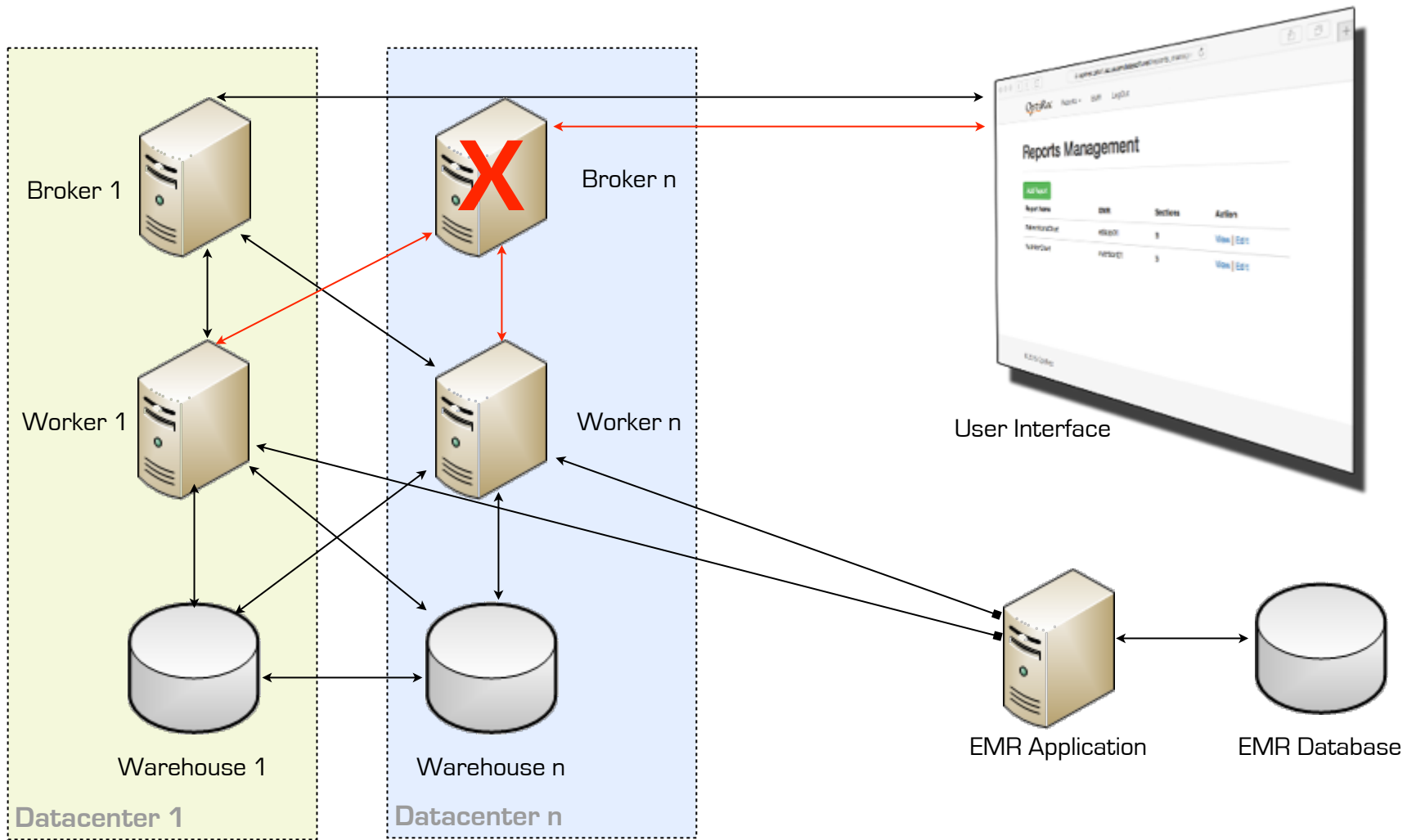
### ❖ User interface

- Allows authenticated users to run on demand reports
- Administers EMR and report configuration
- Provides search capability for existing reports

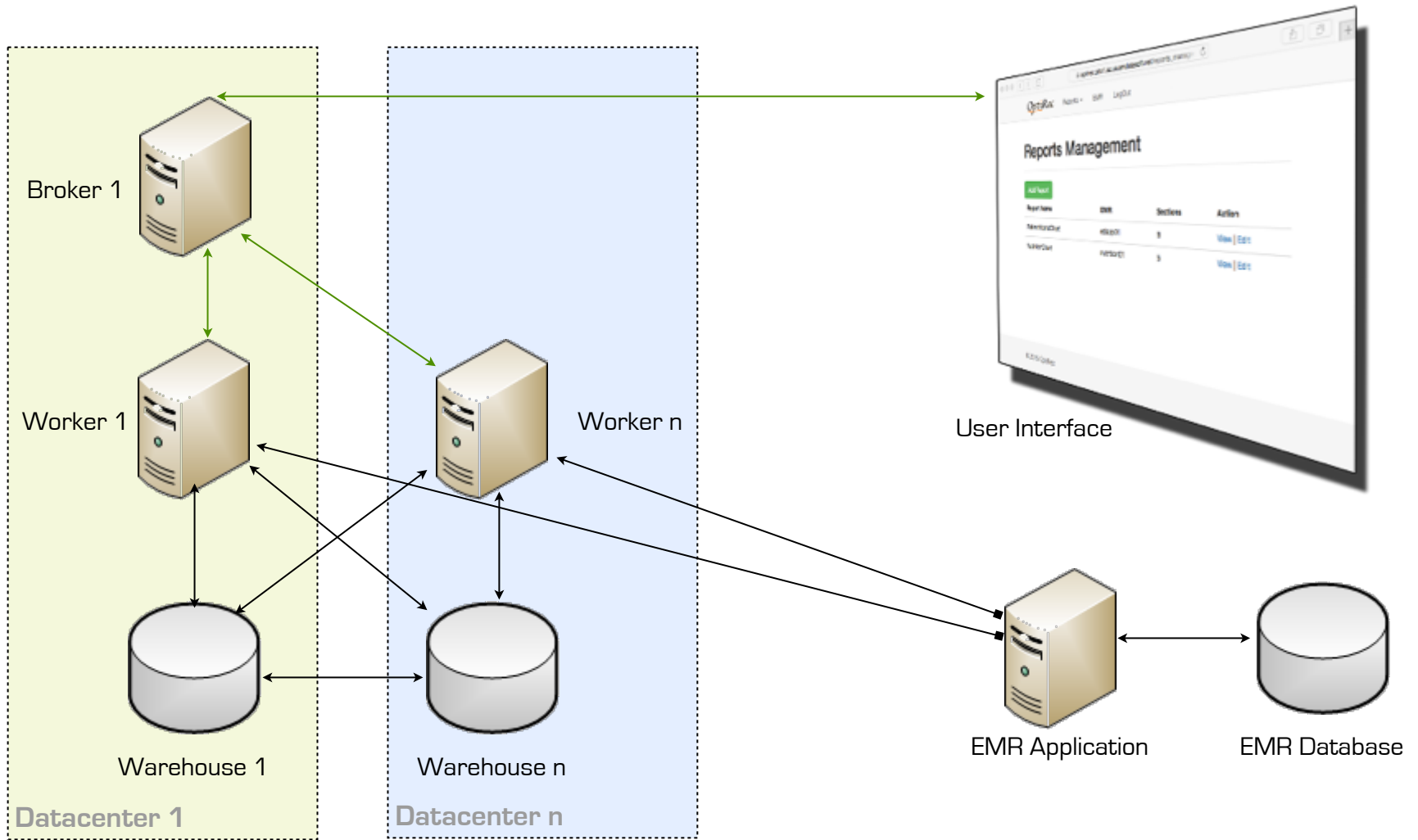
# Application Components (cont.)



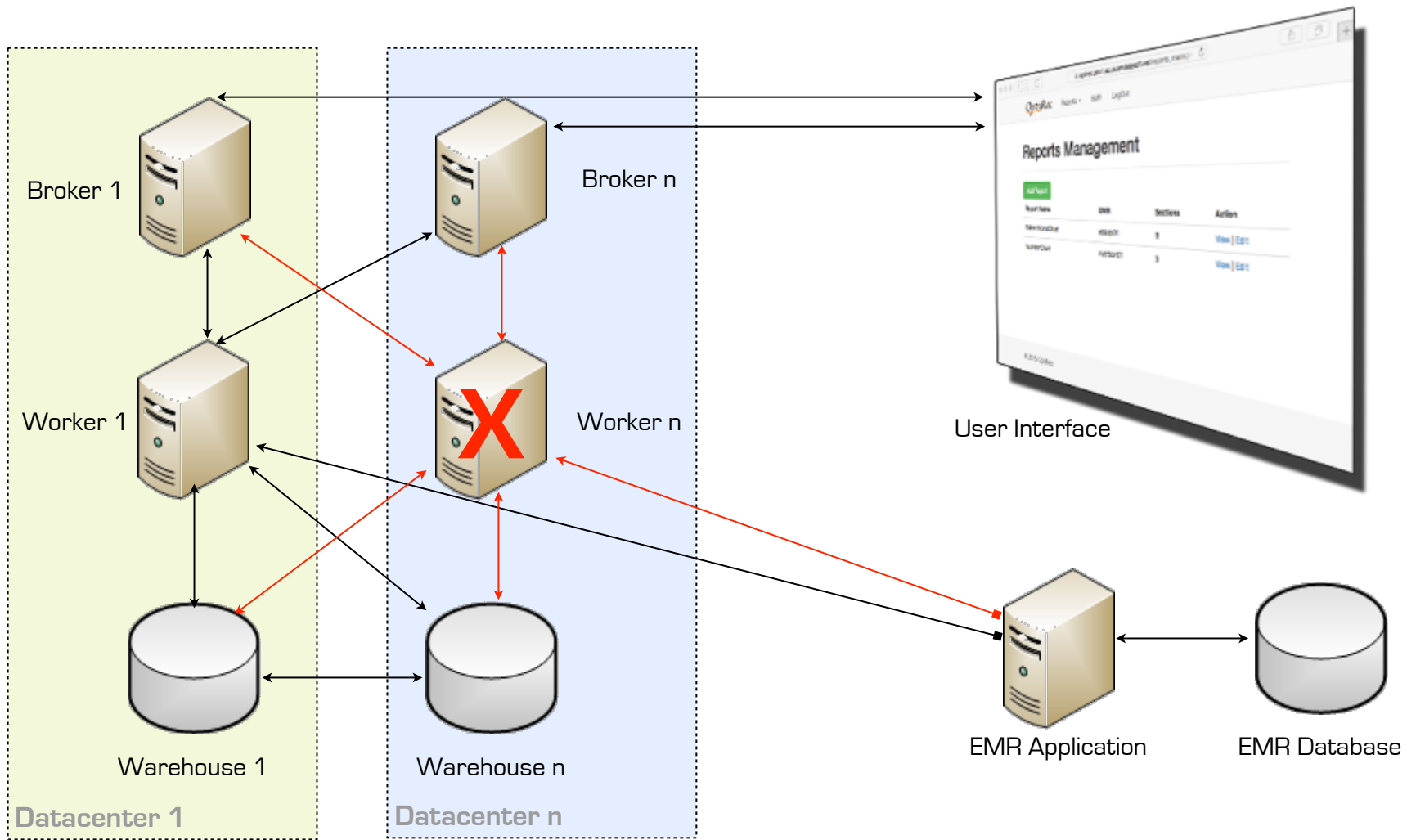
## Failure (scenario 1)



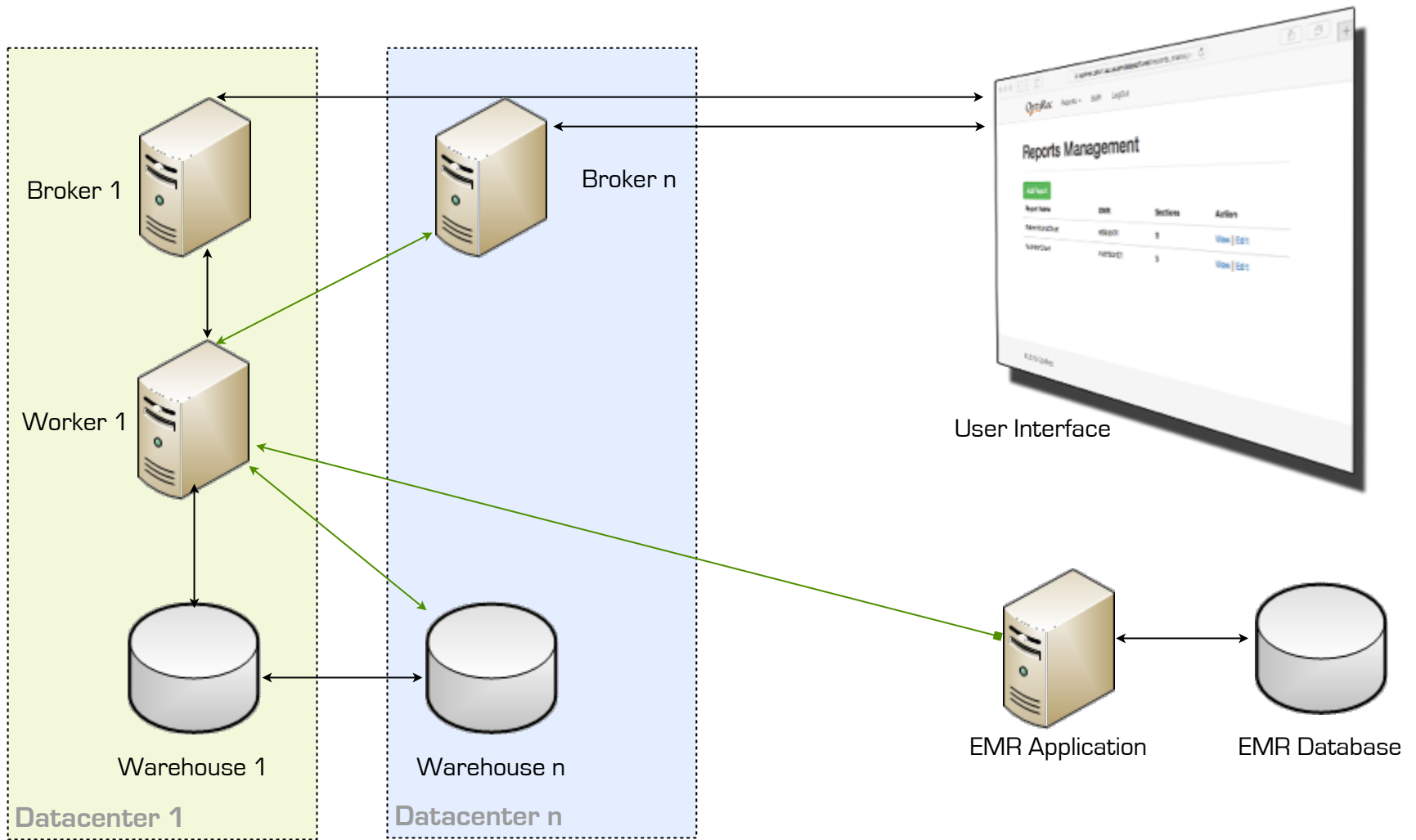
## Failure (scenario 1)



## Failure (scenario 2)

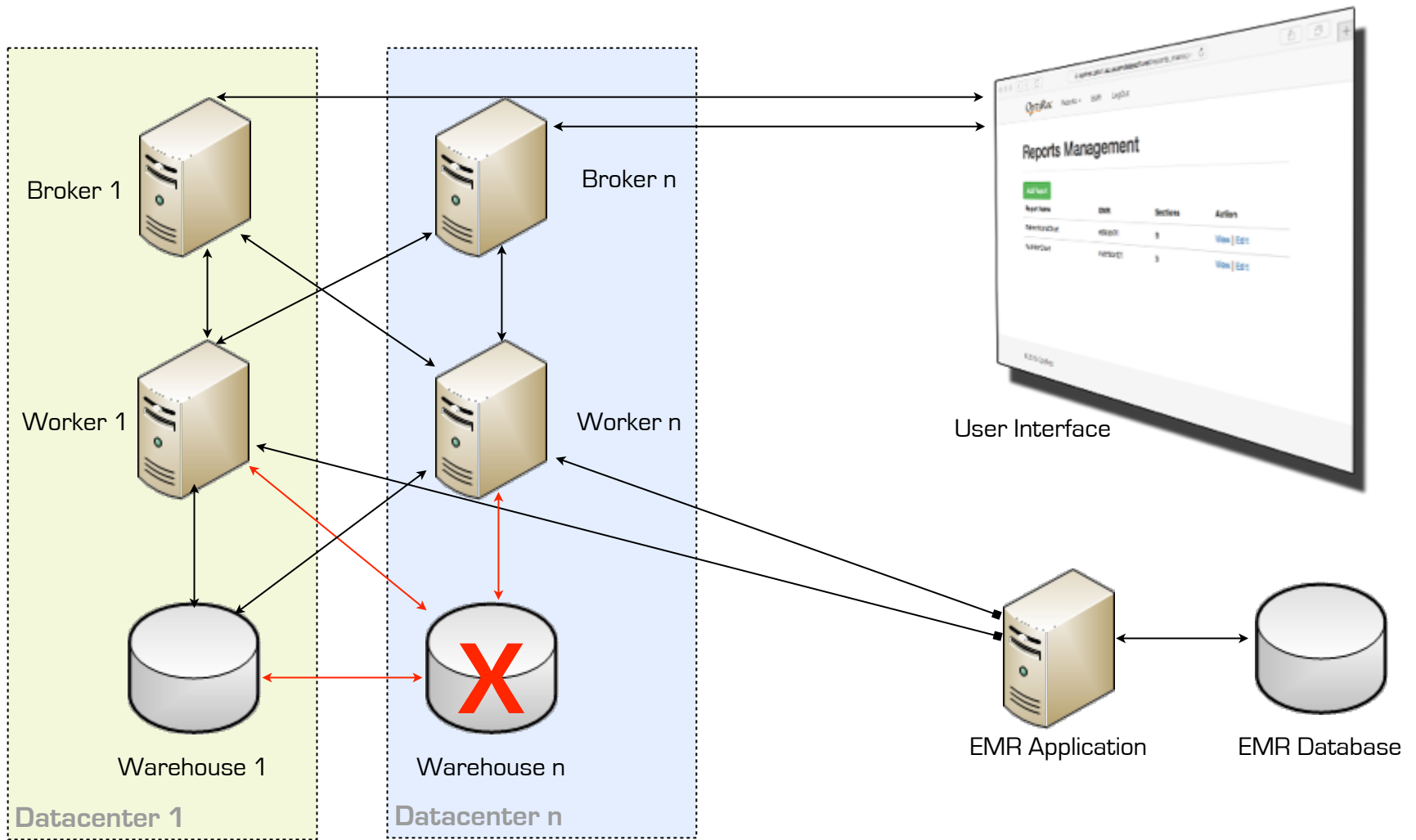


## Failure (scenario 2)

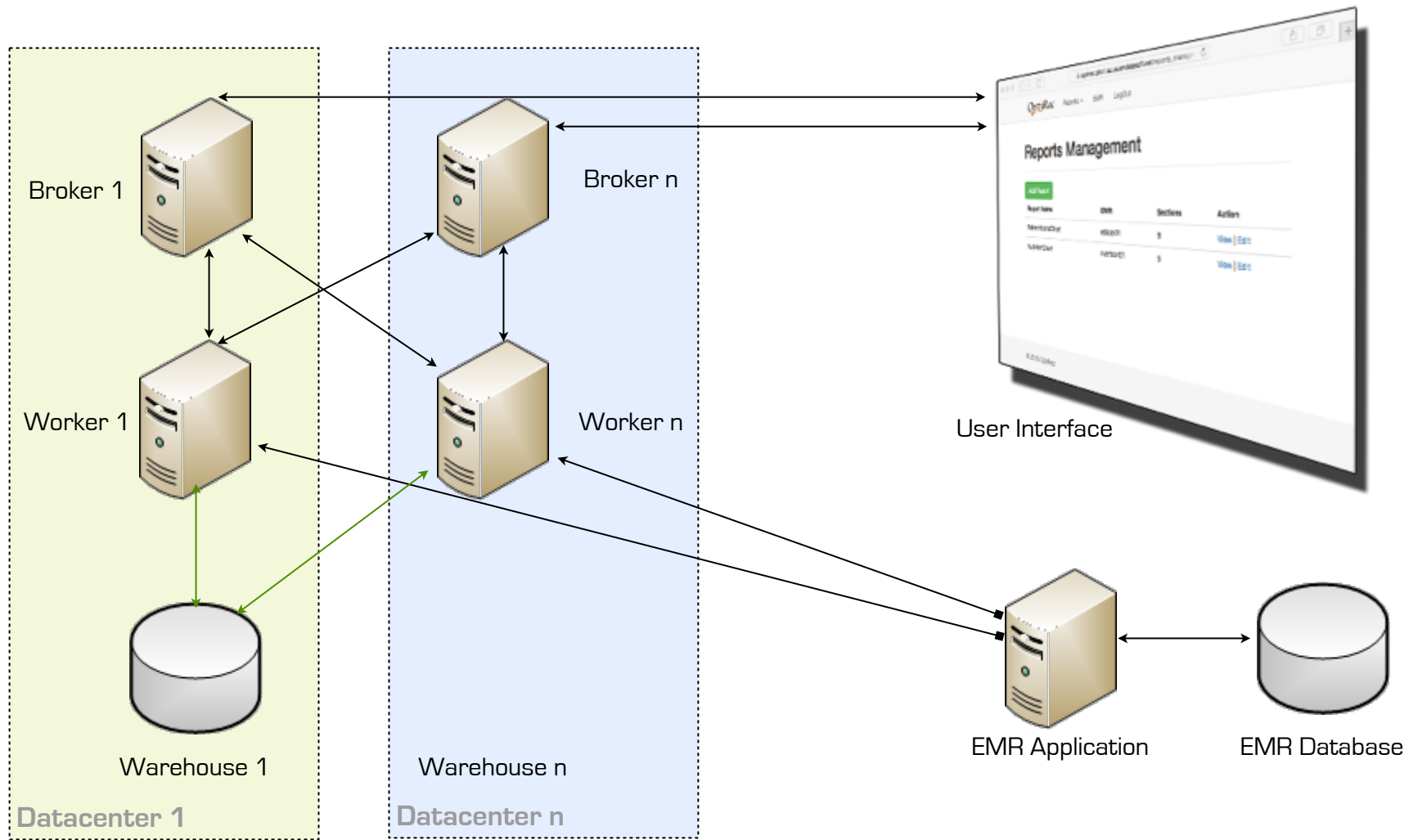




## Failure (scenario 3)



## Failure (scenario 3)



# Warehouse Hardware Requirements

Component	Minimum:	Growth Formula:
<b>CPU</b>	1 socket (min. 8 core) Intel Xeon	1 CPU core for every additional 30 concurrent online users
<b>Memory</b>	24GB	2GB for every additional 30 concurrent online users
<b>Disk</b>	1500GB	10GB/year for every additional 50 concurrent online users
<b>Network</b>	1GB/s (bonded dual NIC)	N/A
<b>Fiber</b>	8GB/s (dual port HBA)	N/A
<b>Operating System</b>	Debian x86_64	Kernel 3.0 or higher
<b>Virtualization</b>	VMWare ESX/ESXi	5.5 or 6.0

# Broker - Worker

## Hardware Requirements

Component	Minimum:	Growth Formula:
<b>CPU</b>	1 socket (min. 8 core) Intel Xeon	1 CPU core for every additional 30 concurrent online users
<b>Memory</b>	24GB	2GB for every additional 30 concurrent online users
<b>Disk</b>	120GB	N/A
<b>Network</b>	1GB/s (bonded dual NIC)	N/A
<b>Fiber</b>	8GB/s (dual port HBA)	N/A
<b>Operating System</b>	Debian x86_64	Kernel 3.0 or higher
<b>Virtualization</b>	VMWare ESX/ESXi	5.5 or 6.0

# Software Requirements

Package:	Version:
Java JDK	1.8.60
ZeroMQ	4.1.2
Apache Cassandra	2.2.0
PHP	5.6
Apache Web Server	2.4.16
JZMQ	4.1.2
PHP ZeroMQ	4.1.2
DataStax Java Driver	2.2.0 rc3

Package:	Version:
Oracle JDBC	6
Microsoft SQL JDBC	4.1
MySQL JDBC	5.1.34
DB2 JDBC	4.16.53
KBS JDBC	4.5

# Supported EMR Database Platforms

Database:	Versions:
Oracle	10.2, 11.1, 11.2, 12.1
Microsoft SQL	2008, 2008 R2, 2012, 2014
MySQL	4.1, 5.0, 5.1, 5.5, 5.6, 5.7
DB2	9.5, 9.7, 10.1, 10.5
KBS	4.5, 4.6, 5.0