



Best Practices for Elastic Data Access in a Shared Services Architecture

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Problem Statement



- Question:
 - I have lots of Coherence Applications, How to best share coherence resources across them?
- Answer
 - It depends...

Trade-offs



- Reuse
- Isolation
- Manageability

Single Homogeneous Cluster

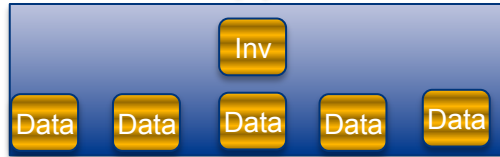


- All Applications are distributed across all nodes of a homogenous cluster where all nodes start all services.

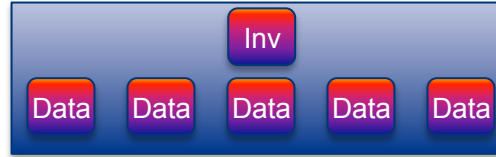
Single Clusters



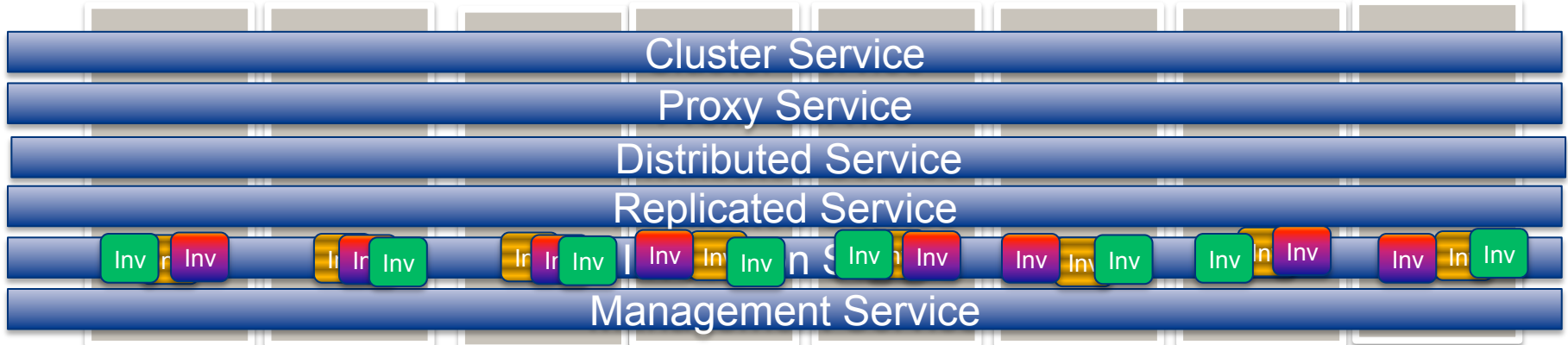
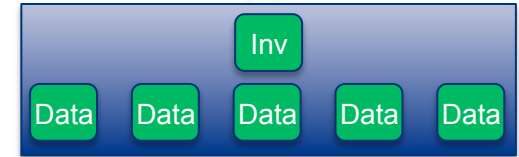
App1



App2



App3



Single Homogenous Cluster



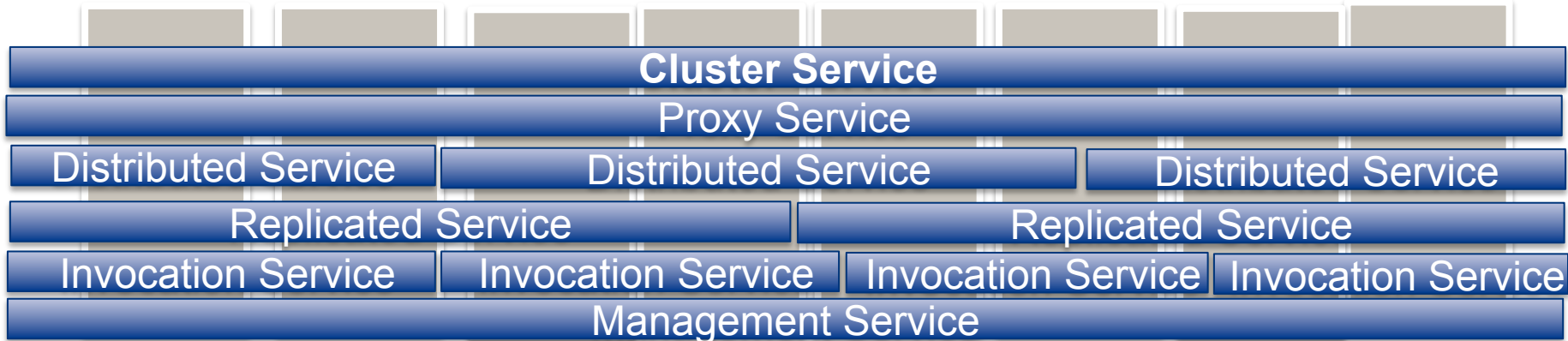
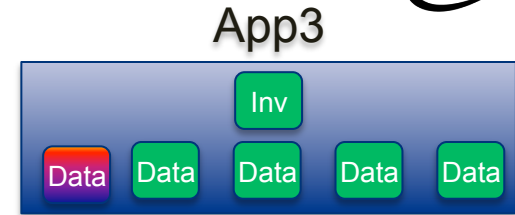
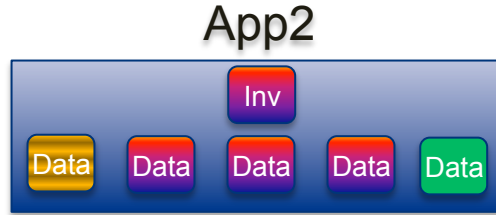
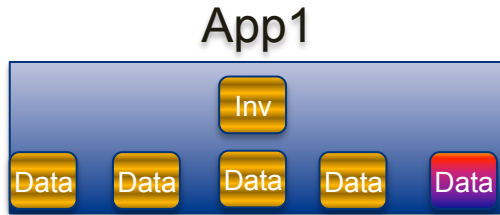
- Benefits :
 - Complete Reuse
 - Join Capable data
- Challenges
 - Change analysis (i.e. Will new applications impact current?)
 - Heap Usage Isolation
 - CPU isolation
 - Capacity Management

Single Heterogeneous Cluster



- A single cluster where each node service configuration changes based on the role of the node.

Heterogeneous Service



Single Heterogeneous Cluster



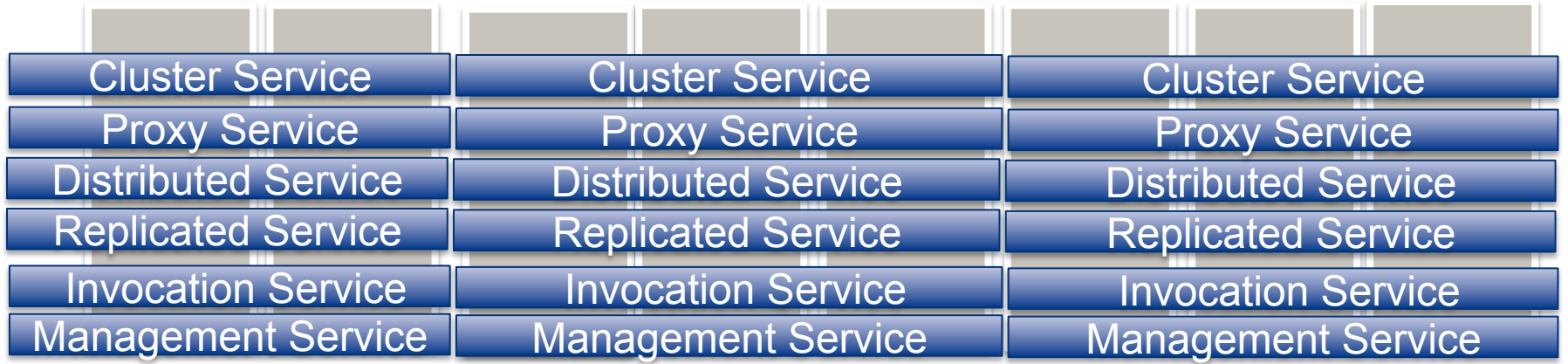
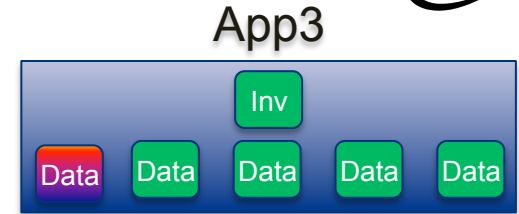
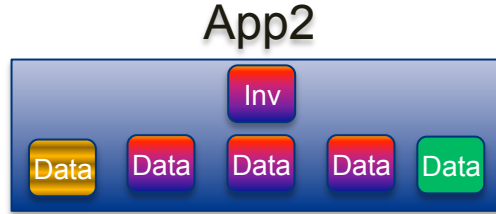
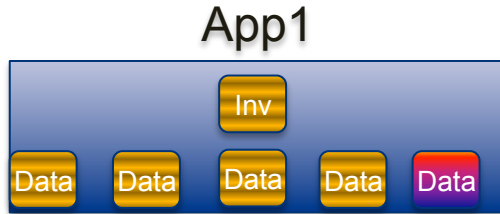
- Benefits :
 - CPU Isolation
 - Heap Isolation
 - Thread Isolation
- Challenges
 - Complex configuration
 - Infrastructure Isolation
 - Data joins-Transactions
- Best for:
 - Dynamic Single Owner Environments

Multiple Cluster



- A cluster for each data domain and connect to each domain using Coherence Extend.

Multiple Clusters



Multiple Cluster



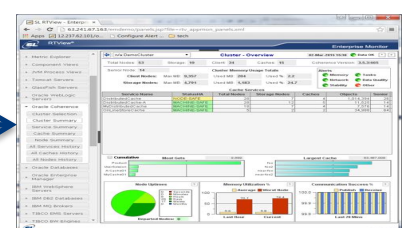
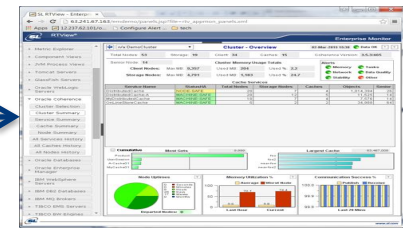
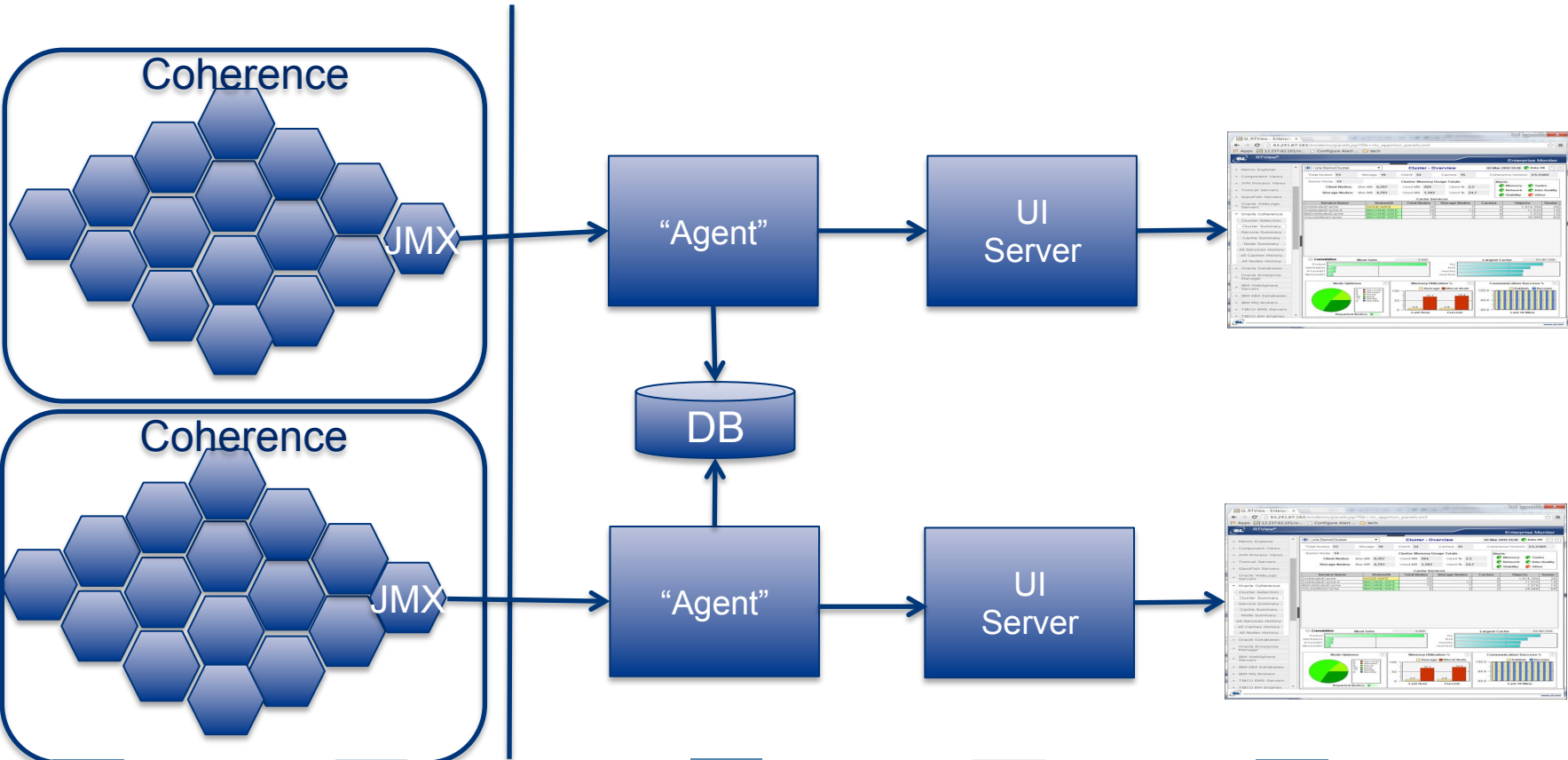
- Benefits :
 - Complete Isolation across each data domain
- Challenges
 - Managing more clusters
 - Joins-transactions across clusters

Monitoring Features



- Health monitoring (alerting)
- Scalability Analysis
- Event Analysis
- Bottleneck Analysis
- Capacity Analysis
- Usage and performance Analysis
- Task Analysis (threads)
- Client Analysis (proxy)
- Tuning Analysis (JVM GC).

Coherence Monitoring Architecture



Monitoring Challenges



- How do we determine the current Activity and health state of multiple clusters?
- When a customer calls with an Issue, How do we determine which cluster the issue is with?

Multiple Cluster Overview



MultiCluster Proxy



Multi Cluster Proxy - Remote Connections

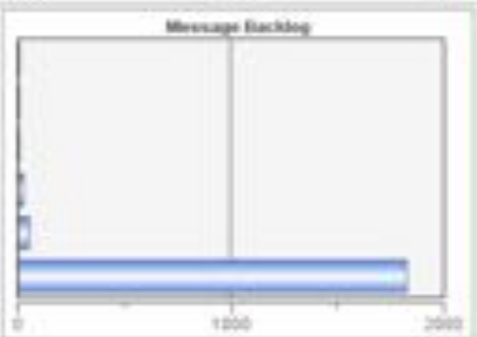
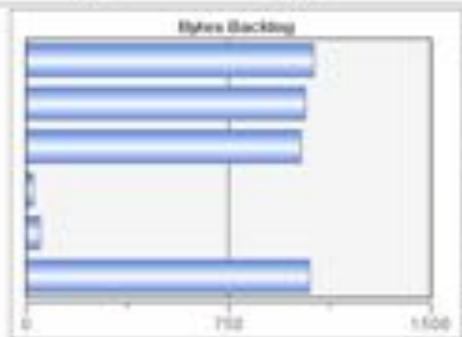
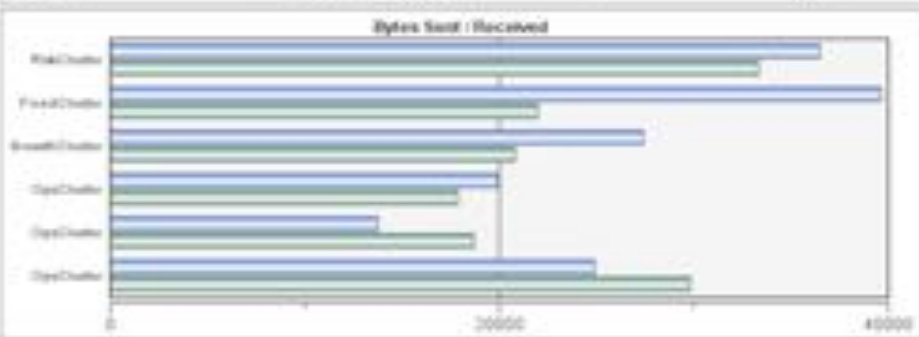
14 Mar 2015 00:21 Data OK

Remote IP Filter:

IP	Conn	Bytes Received	Bytes Sent	Messages Received	Messages Sent	Max Byte Backlog	Max Msg Backlog
10.0.0.97	1	36,532	30,640	86	72	1,343	88
10.1.0.26	4	22,514	30,968	80	40	1,343	90
110.0.0.1	6	176,415	181,071	3,326	3,326	1,343	1,952
110.0.0.11	5	152,288	156,037	1,840	1,840	1,343	1,710
10.0.0.79	1	36,730	21,804	71	32	1,343	82
10.0.0.94	1	37,514	31,674	54	30	1,343	95
110.0.0.12	5	181,707	184,294	1,818	1,802	1,343	1,741
10.0.0.10	1	36,696	21,126	67	79	1,338	88

Connection Detail for 110.0.0.2

Connection	Location	Out Msg Backlog	Out Byte Backlog	Bytes Received	Bytes Sent	Bytes Rec per second	Bytes Sent per second
RockCluster	ProxyNode10 SLNBR10	0	1,065	36,510	33,342	1,825.66	1,676.47
OpenCluster	ProxyNode01 SLNBR01	1,824	1,049	24,923	26,819	1,374.34	1,448.22
FixedCluster	ProxyNode0 SLNBR0	4	1,034	36,604	21,988	1,821.74	1,215.90
BranchCluster	ProxyNode11 SLNBR11	0	1,021	27,386	20,774	1,200.21	933.87
OpenCluster	ProxyNode05 SLNBR05	52	52	12,383	18,885	717.98	1,029.88
OpenCluster	ProxyNode01 SLNBR01	27	27	19,828	17,888	1,101.24	988.34





Questions

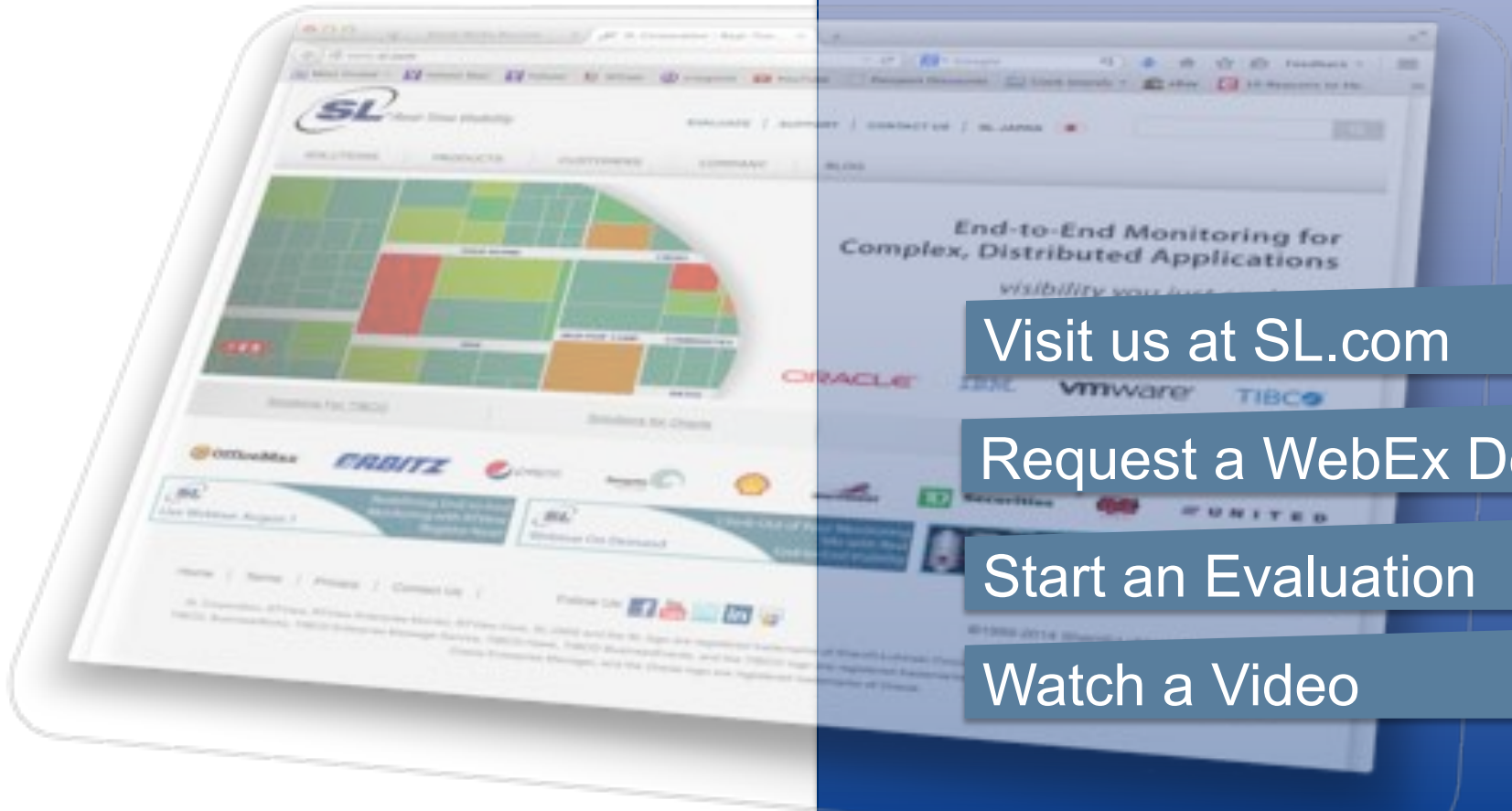


For more information



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