Chordiant Software on Series Z

March 15 2010

Agenda

- What does Chordiant do?
- Why did we port to Series z?
- Our porting experience

About Chordiant

Optimizing the Customer Expertience

- Founded in 1997
- Symbol NASDAQ: CHRD
- Global Headquarters: Cupertino, Ca.
- 200+ Global 1000 Customers
- Half the Top 20 Global Banks
- Half the Top 10 Global Insurers
- Ten of the Top 40 Global Telco's

Chordiant
Optimizing the Customer Experience

Customer lifetime value is eroding:

- Operational costs increasing
- Wallet share decreasing
- Pressure to deliver new products, services & strategies
- Credit crunch

- Brand "hopping" & discriminating shoppers
- Adoption of self-service: less personal interaction
- Live in social media communities: anyone can broadcast opinion
- "Segment of one" everyone believes they are unique

CORPORATE DISRUPTION

- Erosion of trust
- More oversight
- M&A
- Do more with less

★33% of companies are experiencing higher costs to sell, service and retain customers
Source: CMO Council

★The average company loses half of its customers over 5 years
Source: The Loyalty Effect

Chordiant. Optimizing the Customer Experience

Multiplying Customer Lifetime Value

Why did Chordiant Port to Series Z?

Financial Services Customer

- Call Center – Cards Processing, Sales Retention
  - 16 call centers Worldwide
  - 7000 users, 2200 Concurrent users
- Branches
  - 2200 locations
  - 13,000-15,000 users
- Web
  - 10,000,000 hits/decisions/user sessions per week
  - Adaptive Models for offer prediction
- Real Estate Lending
  - 20,000-25,000 independent mortgage brokers
  - Handles over 44,000 product pricing combinations

Why did Chordiant Port to Series Z?

- Market Demand
  - Chordiant provides mission critical solutions to industries who demand top performance, scalability, security and availability!
  - Who Runs on Z?
    - 50 top global banks
    - 9 of top 10 global Insurers
    - 64% of Fortune 500 (US)
    - 45% of Fortune 1000 (US)

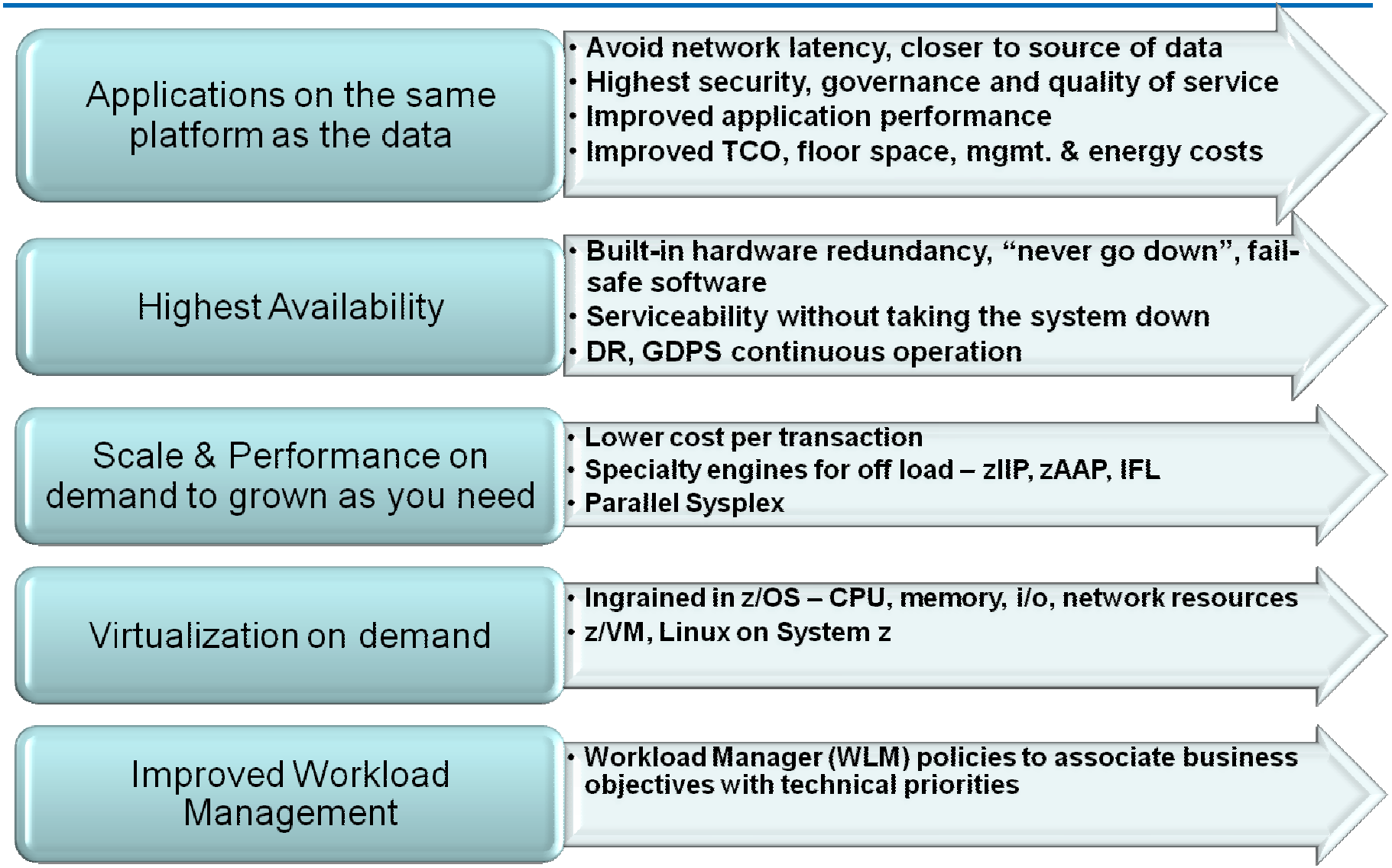
Chordiant
Optimizing the Customer Experience

Why did Chordiant Port to Series Z?

- **Customer Demand**
  - IBM and Chordiant are driving value for Global companies like Royal Bank of Scotland

Chordiant.
Optimizing the Customer Experience

The Value of Chordiant Solutions on System Z



Chordiant.
Optimizing the Customer Experience

New!

IBM System z Solution Edition for Chordiant

z/Solution Editions

IBM's new offering delivers new economics in the enterprise:

- Attractive System Z pricing to support new Chordiant Customer Experience (Cx™) applications
- Package includes IBM system hardware, maintenance and software stack, add-on LPAR or new System z BC or System z EC (dedicated LPARS)

Chordiant. Optimizing the Customer Experience

How did the porting initiative go?

- ***Fast***:
  - Chordiant and IBM completed the port to System Z in 4 months for call center desktop application; 3 months for decisioning application.
  - Chordiant support of IBM technology stack made porting a straight forward exercise.
    - Java/J2EE Technologies
    - Websphere Application Server
    - DB2 Database

How did the porting initiative go?

- ***Successful***:
  - Performance testing results indicate exceptional response times and a high degree of scalability
  - Our first implementation at RBS is going smoothly and has validated the superior performance

A Joint Team Effort: Porting to z/OS

- The Team:
  - Chordiant Resources:
    - Senior Java Developer
    - Database developer/DBA
    - Business Analyst and QA
    - Project Manager
  - IBM Resources:
    - z/OS, DB2 on z, WAS on z Experts
- IBM helped Chordiant resources by providing informal training and orientation:
  - z/OS
  - DB2 on Z

A Joint Team Effort: Porting to z/OS

- Chordiant maintains single codebase for all platforms. Configuration settings and scripts are customized for each platform, as needed.
- Approach taken:
  - Two step approach
    - Step 1 : Port to WebSphere (z/OS) and DB2 (z/Linux)
    - Step 2 : Port to WebSphere (z/OS) and DB2 (z/OS)
  - Version 6.3 was tested in two steps.
  - Version 6.4 porting was done in one step i.e. Step 2, both on z/OS

Performance Testing

- System Z was configured with one LPAR with 24 General purpose processors
- Size of the test data:
  - No. Users (agents) :10K
  - No. Customers :500K
  - No. Accounts :1M
  - No. Account Entries:2M+
- Two sets of test runs:
  - Short Duration Runs (1hr) for Scalability and Performance
  - Long Duration Run (8 hrs) for Stability
- No. of virtual users:
  - 1000, 1500, 2000, 2500

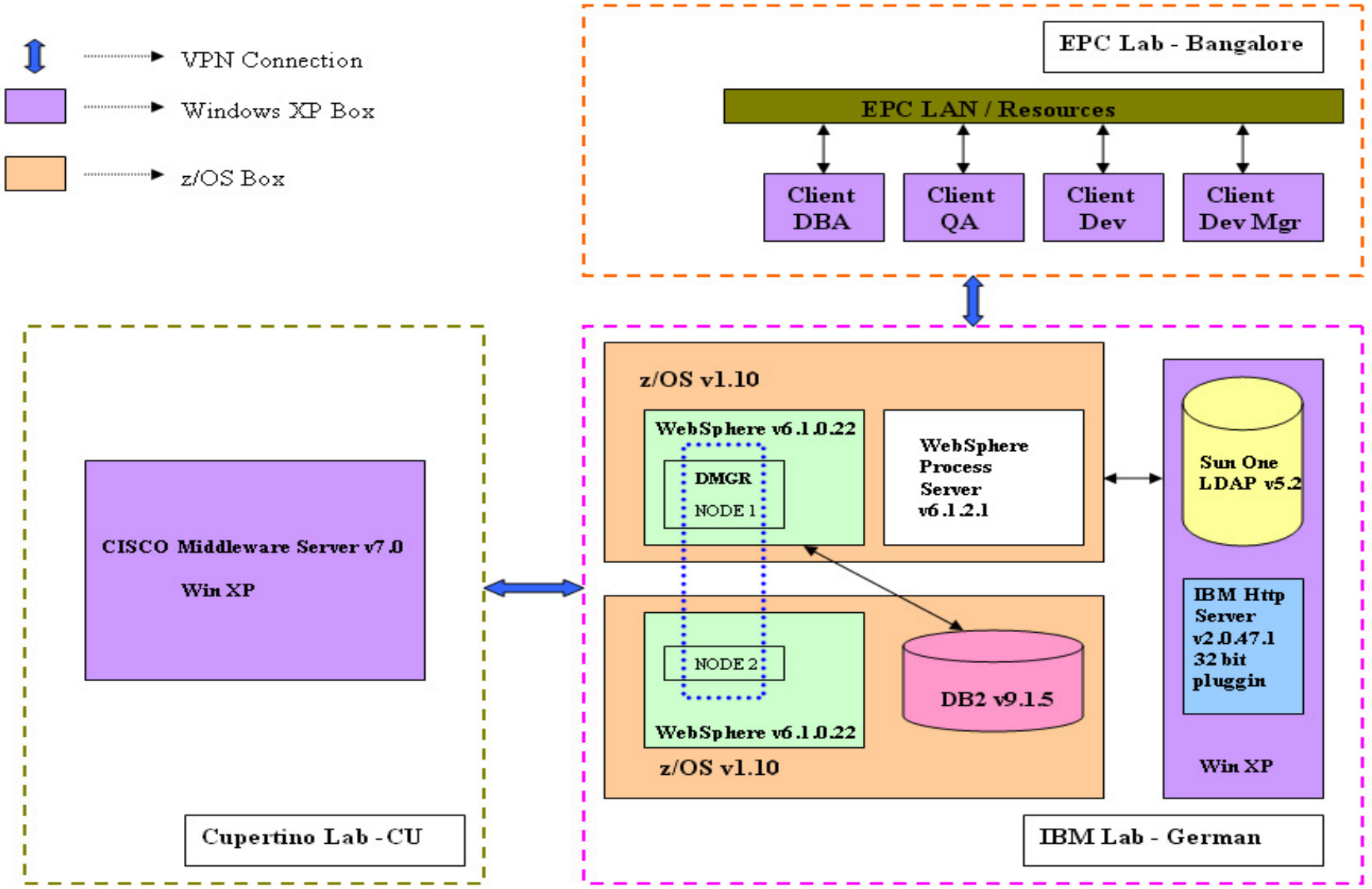
Performance Testing Results

- ***Excellent***!
  - Sub-second response times were observed for Average and 90th Percentile for all transactions.
  - The average CPU Utilization was 81% at the maximum load of 2500 virtual users [well below the recommended utilization of 90%]

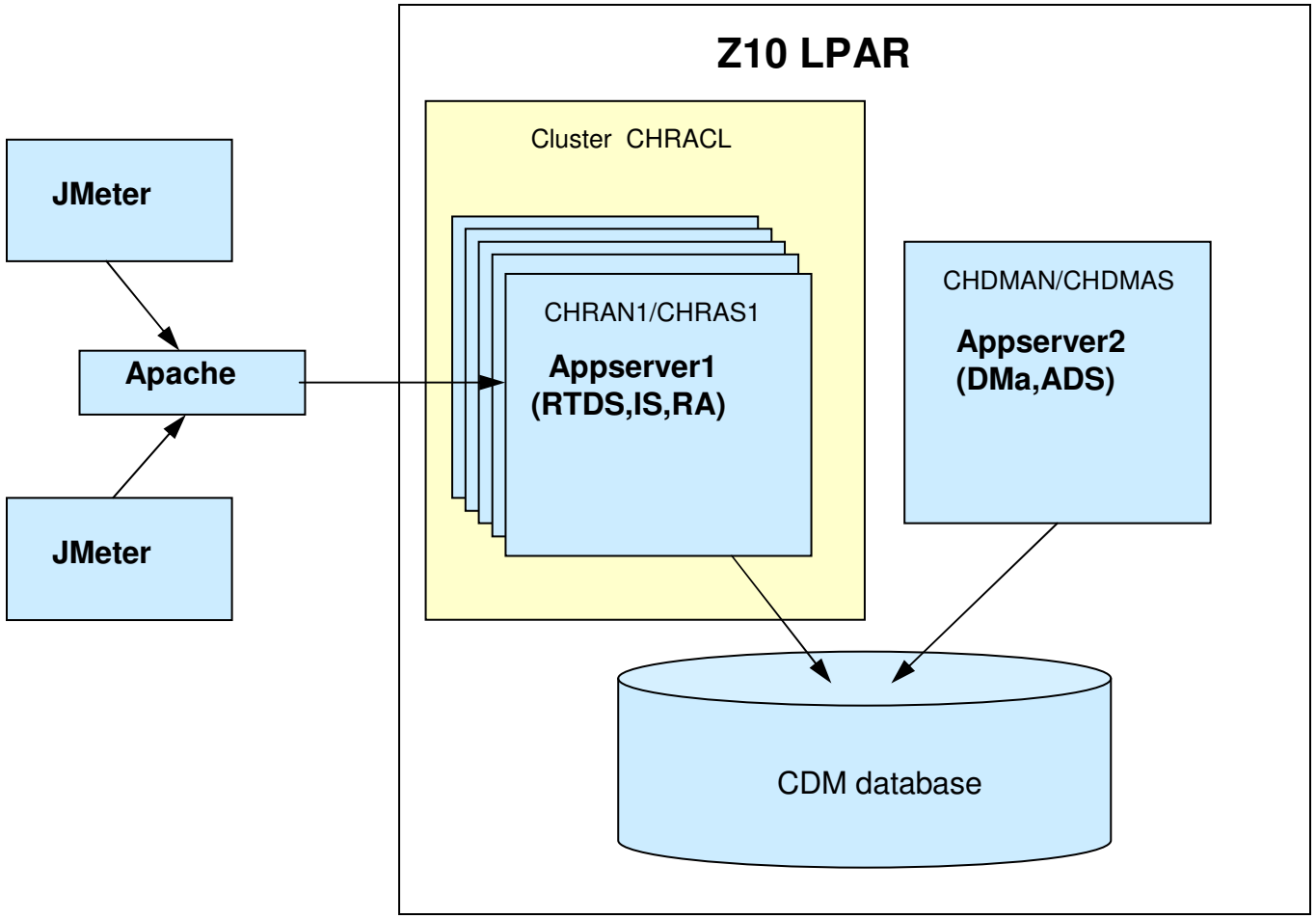
Thank You

John.Shap@chordiant.com

CFS 6.4 z/OS porting - Topology



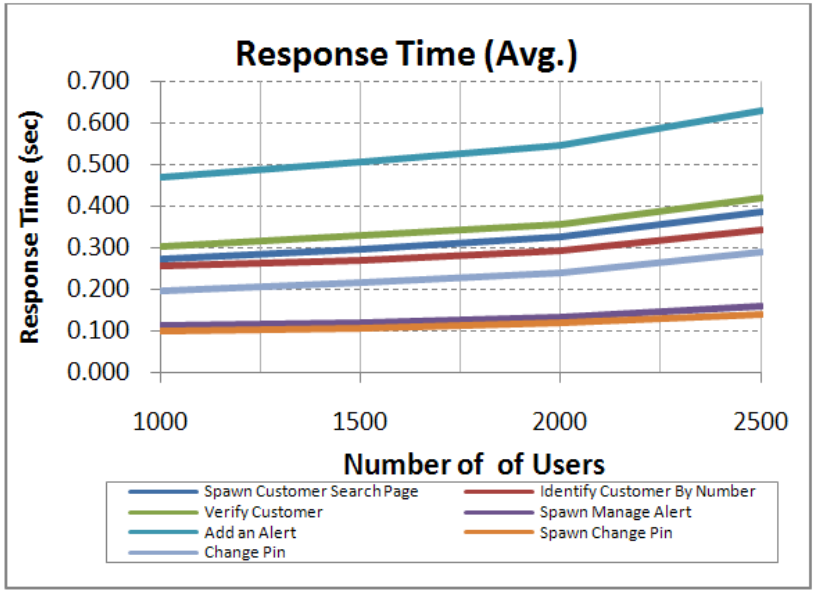
Performance Testing Setup

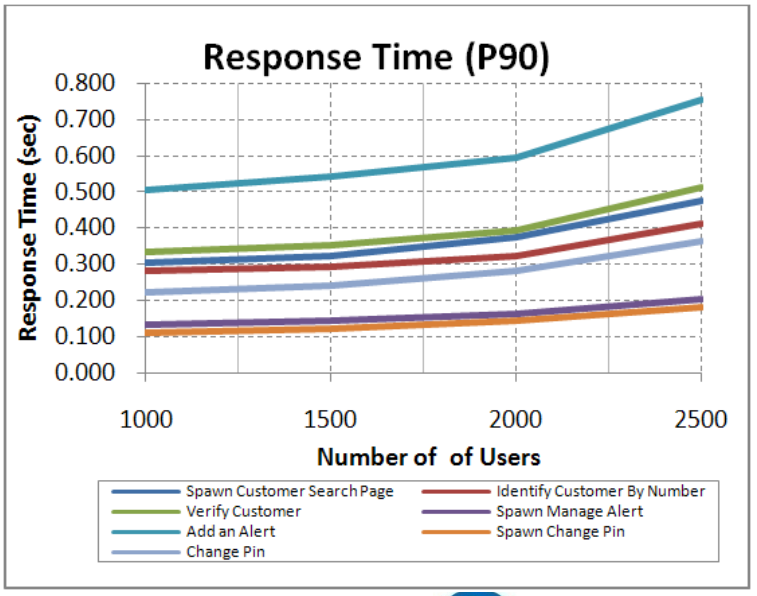


Chordiant
Optimizing the Customer Experience

Performance Results – CFS 6.4 on Z

	Average (Sec)				90th. Percentile				Transaction Volume			
	1000	1500	2000	2500	1000	1500	2000	2500	1000	1500	2000	2500
Spawn Customer Search Page	0.275	0.297	0.329	0.388	0.303	0.323	0.374	0.474	13,764	20,636	27,487	34,315
Identify Customer By Number	0.258	0.273	0.294	0.344	0.283	0.293	0.323	0.414	13,757	20,633	27,434	34,365
Verify Customer	0.304	0.330	0.359	0.420	0.334	0.354	0.394	0.514	13,764	20,635	27,414	34,345
Spawn Manage Alert	0.114	0.122	0.135	0.161	0.133	0.143	0.163	0.203	13,768	20,662	27,442	34,324
Add an Alert	0.472	0.507	0.547	0.633	0.504	0.544	0.595	0.756	13,772	20,675	27,561	34,344
Spawn Change Pin	0.102	0.109	0.121	0.143	0.113	0.123	0.143	0.183	13,760	20,715	27,604	34,349
Change Pin	0.199	0.547	0.243	0.291	0.223	0.243	0.283	0.364	13,764	20,711	27,614	34,326
Total									**96,349**	**144,667**	**192,556**	**240,368**
TPS									26.76	40.19	53.49	66.77

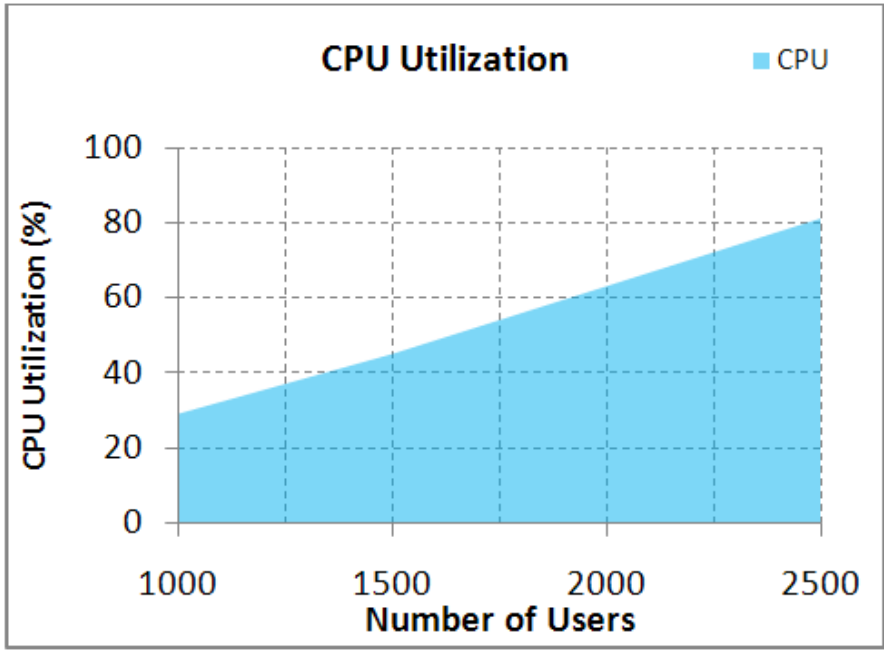


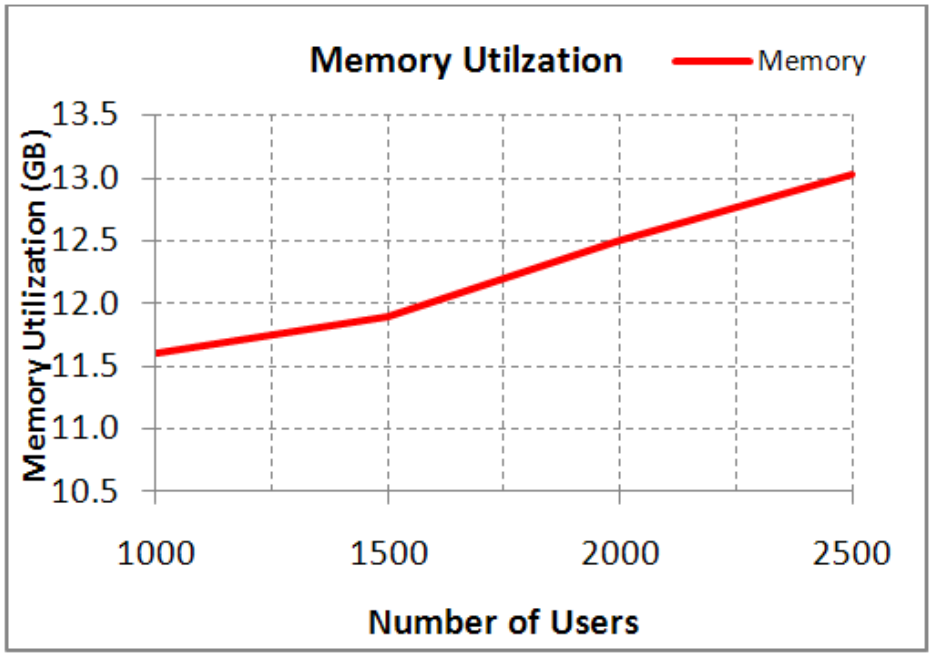


Chordiant.
Optimizing the Customer Experience

Performance Results – CFS 6.4 on Z

runid	vusers	steady state (hrs)	System utilization (%CPU)	memory (GB)	%APPL CP	Projected %APPL zAAP	Projected %APPL zIIP	%APPL CBFAST	Projected %APPL zAAP	%APPL DDF	Projected %APPL zIIP
C0810R02	1000	1	29.1	11.60	674.54	474.16	80.49	459.91	451.91	149.73	80.49
C0810R01	1500	1	45.1	11.89	1052.70	735.15	127.67	718.95	703.64	237.98	127.66
C0811R01	2000	1	63.2	12.51	1480.70	1016.10	187.59	990.91	972.82	351.05	187.59
C0811R03	2500	1	81.5	13.03	1912.70	1314.00	243.88	1281.00	1258.70	457.89	243.88





Chordiant
Optimizing the Customer Experience

Performance testing CDM on z/OS

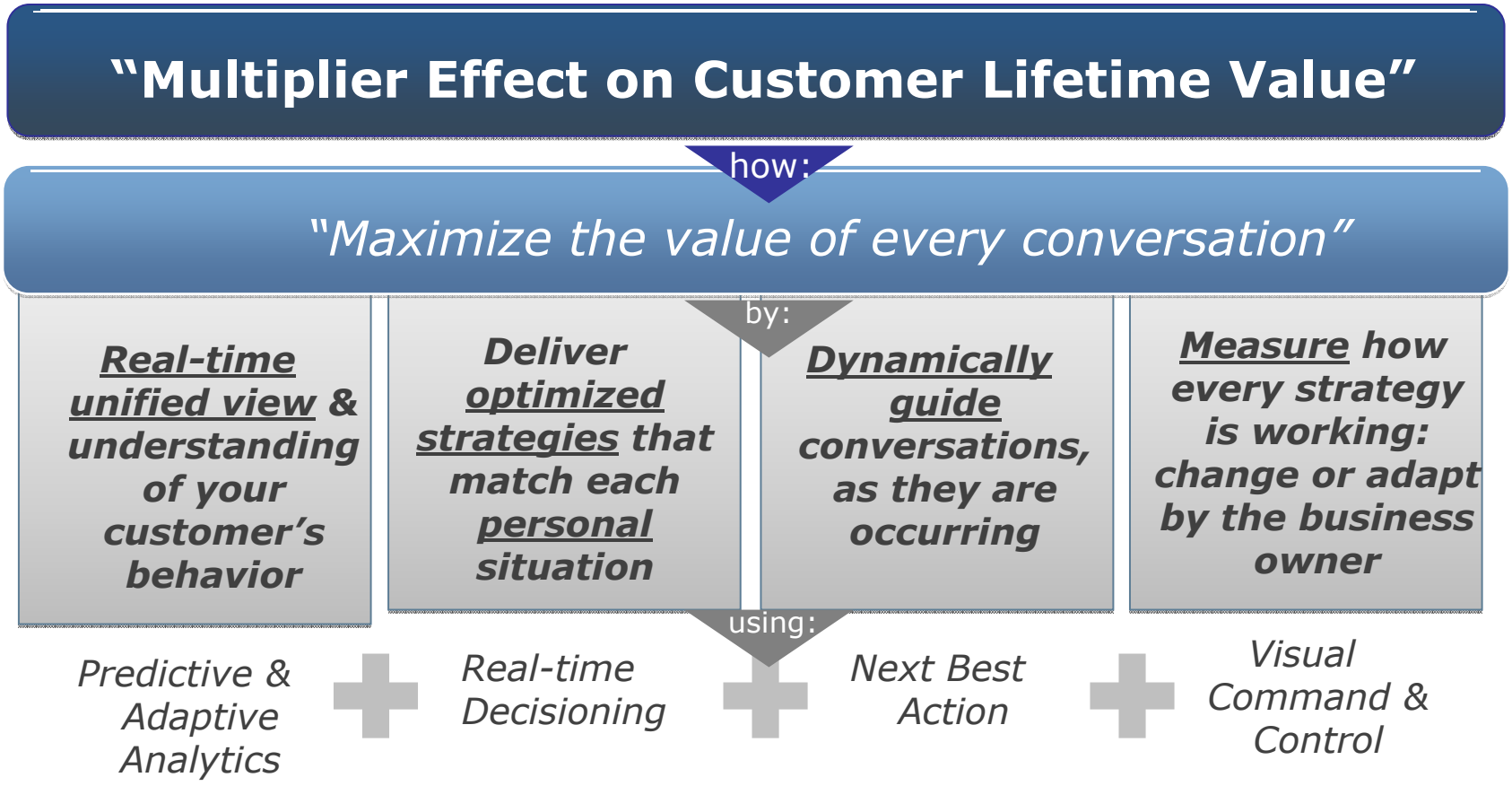
- Latest version of CDM 6.3.1 was performance tested in Poughkeepsie (POK) lab in Jan-Feb 2010.
- No. virtual users:
  - 500, 1000, 1500, 2000, 2500, 3000 and 3500
- Response times:
  - Sub-second response time achieved
- IBM was able to analyze the sizing data and arrive scalability matrix.

Operating System	z/OS v1.10
Websphere App Server	Version v6.1.0.24
DB2 for z/OS	Version 9.1.5
Apache Web Server	Apache WAS plug-in
Load Test Tool	Jmeter v2.3.2
Chordiant Decision Management	CDM 6.3.1 with Recommendation Advisor
No. LPARs	1
Max No. CPs	20

Tech Stack for CFS 6.4

Operating System	z/OS v1.10
Websphere App Server	Version v6.1.0.22 (Network Deployment)
DB2 for z/OS	Version 9.1.5
SunOne Directory Server	Version 5.2
Apache Web Server	Apache WAS plug-in
Load Test Tool	HP Load Runner 9.5
Chordiant Foundation Server	CFS 6.4 with Call Center Advisor

Chordiant's Value to Clients



Real-time, intelligent conversations, consistently across all channels

Chordiant
Optimizing the Customer Experience