Dynamics AX Performance Audit & Benchmarking Services
Sonata Software – Who we are

The Company

30+ YEARS as a IT Solutions Provider

400 M USD+ REVENUE p.a., 15% 3 Yr CAGR

3000+ TEAM across US, EU, Asia & ANZ

SEI CMMI L5, ITIL & ISO certified

What we do - Platform-led Digital Business Transformation

Industry-focus

Retail and Distribution
- Hyper
- Groceries
- Apparel
- Consumer Goods

Travel
- OTA
- TO
- Corporate
- Air
- Rail

Software Providers
- ERP
- SCM
- Travel
- Retail

Industry-specific IP / Solution and expertise

D365 Ready Live on Appsouce
Unique Microsoft & Dynamics Partner aligned to the Digital Vision

25+ YEARS developing, supporting and delivering MS technologies. A Decade of Engineering Dynamics AX & CRM for MS

Sonata - ISV Development Center for Operations & CRM across the Globe

Country Partner of the Year – FY17, FY16 & FY14

MS Dynamics Distribution partner of the Year FY15

Global Finalist Messaging – FY17

Global Finalist for Hybrid Cloud and Infra – FY16

O365 Deployment partner of the Year FY16

Only Global Microsoft ISV Dev center Partner for Operations & CRM

360° PARTNERSHIP 25+ YEARS

Engage across PE, PDS, EAP

Compete Wins & Reference Customers

13 Gold Certifications

Gold Certified, Enterprise SI Partner, top LAR India

Global GTM & Delivery – Direct, with MS & MS Partners

Dedicated CoEs – AX, CRM, BI, SharePoint, O365, Azure, Devices

Top Goals for Performance Audit

- The symptoms of poor performance such as Response time, Throughput and Availability (Application not responding)
- Bottlenecks in performance
- Validate deployment architecture and configurations against the best practices for Dynamics AX
- Validation of development artifacts to comply with maintainability, performance and best practices
- Audit for scale and load to take business to the next level
- High utilization or pressure on resources across tiers – CPU, Memory, Disk I/O & Network
- Investment in the system pays back & running at its optimal levels
Typical Issues to analyze for

- **Workloads**
  - Change in workload and Other processes
- **AOS / Application Configurations**
  - Application & Kernel Versions
  - Configuration Keys
  - Debugging / Tracing
  - Table Caching
  - Number Sequences
- **SQL Server**
  - Configurations
    - File placements, Auto, Growth, RCSI, DB Statistics, TempDB, MAXDOP, Cluster Size
  - Expensive Queries
  - Blockings / Deadlocks
  - Missing / Un Used Indexes
- **Application Code**
  - Server Side / Client Side code
  - Cache lookup settings
  - TTS Blocks
  - Nested Loops
  - Row based vs Set based
  - Multiple Selects
- **Hardware**
  - Sizing
  - Disk Settings / Layout
  - Security
  - Roles & Security Policies
  - Audit Logs

Typical Perf Audit Scope

Audited Systems:
- Dynamics AX Client
- AOS Server
- Database Server
- Web/EP Server

Tools:
- Best Practice Analyzer
- Dynamics AX Perf Analyzer
- Perfmon Counters
- Event Viewer
- Custom Scripts & SQL Queries
- Manual Inspection

Results:
- Score Cards
- Issues
- Recommendations
Sonata’s Diagnostics Approach

Walkthrough
- Walkthrough of application landscape, Architecture and Deployment
- Walkthrough of high level business process in AX, AX POS & Surround applications
- Walkthrough of current pain points of Application
- Walkthrough of Future roadmap

Functional/Technical analysis
- Analysis of technical architecture and deployment landscape + Integrations
- Analysis of Setups and Configuration
- Analysis for Customizations
- Deploy Scripts & Tools
- Analysis Iteration 1
  - Execute Test
  - Analyze test output
  - Collate & Validate findings

Functional/Technical analysis
- Analysis Iteration 2 and 3
  - Execute Test
  - Analyze test output
  - Collate & Validate findings
- Collect Data Test & Prod
- Prepare Audit Report

Workshop
- Validate Sonata’s understanding
- Present analysis findings
- Evaluation and Finalization of solution options and approach

Planning for Next Phase
- Approach
- Ball Park Estimation
- Plan

Application walkthrough/ Pain points

Week 1

Week 2

Week 3, Week 4 & Week 5

Week 6

Discovery

Analysis Iterations

Findings & Presentation
Sample Deliverables

- Summary of Findings and Recommendations
- Detailed Reports
- Collated

Data Points

**AX System Health (Sample)**

**AX System Issues – By System Category (Sample)**

**Scorecards**

The scorecards for the Microsoft Dynamics™ AX environment are provided below. These scorecards are a composite view based on the data collected and the answers given throughout the course of interviews and surveys to illustrate the possibility of encountering issues in a specific area. The scorecards show the state of the system with respect to health (current issues) and risk (potential for future issues).

**Issues & Recommendations**

<table>
<thead>
<tr>
<th>Application Configuration</th>
<th>Issue Severity</th>
<th>Issue Type</th>
<th>Estimated Effort to fix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application and Kernel Versions</td>
<td>High</td>
<td>Health</td>
<td>Medium</td>
</tr>
<tr>
<td>Entire Table Cache for big tables</td>
<td>High</td>
<td>Health</td>
<td>Medium</td>
</tr>
<tr>
<td>Batch Configuration</td>
<td>High</td>
<td>Risk</td>
<td>Low</td>
</tr>
<tr>
<td>Number Sequence Settings</td>
<td>Medium</td>
<td>Risk</td>
<td>Medium</td>
</tr>
<tr>
<td>AOS Server Configuration</td>
<td>Medium</td>
<td>Health</td>
<td>Medium</td>
</tr>
<tr>
<td>Processors core</td>
<td>Medium</td>
<td>Health</td>
<td>Medium</td>
</tr>
<tr>
<td>Power Management Settings</td>
<td>Medium</td>
<td>Risk</td>
<td>Low</td>
</tr>
<tr>
<td>X++ Code analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Severity Check**

- Severity 1 X++ Best Practices check
- Severity 2 X++ Best Practices check
- Severity 3 X++ Best Practices check

**SQL Server/Database Configuration**

<table>
<thead>
<tr>
<th>SQL Version</th>
<th>Issue Severity</th>
<th>Issue Type</th>
<th>Estimated Effort to fix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server authentication</td>
<td>Medium</td>
<td>Risk</td>
<td>Low</td>
</tr>
<tr>
<td>Additional databases on server</td>
<td>Medium</td>
<td>Health</td>
<td>Low</td>
</tr>
<tr>
<td>Security</td>
<td>Medium</td>
<td>Risk</td>
<td>Low</td>
</tr>
<tr>
<td>Access to AX Production databases</td>
<td>High</td>
<td>Risk</td>
<td>Low</td>
</tr>
</tbody>
</table>
Sonata’s Track record with Microsoft on Performance

A Large Software Engineering Practice
- Robust Engineering Processes
- Multiple upstream and downstream integration with legacy systems
- Performance Driven Development, Designed and Architected for Scale

Performance Testing Partner for Microsoft
- 12+ years Engagement with Microsoft
- Across multiple releases of Dynamics AX
- Benchmarking, Performance Testing (Perf Runs, Trend Runs, Stress Runs, etc)
- Test Frameworks & Tools (Benchmark Toolkit)
- Test scripts created by Sonata and run at MTC labs

Support Microsoft / MCS on key customer engagements

Methodology
- Blue prints, LCS, Tools, Re-usable assets
- Multi Instance Strategy & Management
- Multi Country Rollouts
- Layering & Branching
  - Co-Existence with multiple ISV/Partner solutions

Enterprise Customer Engagements

<table>
<thead>
<tr>
<th>Marquee Engagements</th>
<th>Perf Scenarios / Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe’s largest Auto Services Company</td>
<td>7000 Concurrent Users</td>
</tr>
<tr>
<td></td>
<td>389,000 Sales Lines / Hr</td>
</tr>
<tr>
<td></td>
<td>519,000 Sales Lines / Hr</td>
</tr>
<tr>
<td>Largest Duty Free Operator</td>
<td>350+ POS</td>
</tr>
<tr>
<td></td>
<td>100000+ SKU’s</td>
</tr>
<tr>
<td></td>
<td>60000 Promotions Daily</td>
</tr>
<tr>
<td></td>
<td>50000 Sales Lines / Hr</td>
</tr>
<tr>
<td>Global Specialty Chemicals Company</td>
<td>300 Concurrent Users</td>
</tr>
<tr>
<td>(Manufacturing)</td>
<td>5000+ Transaction Lines / Hr</td>
</tr>
<tr>
<td></td>
<td>Across Purchase, Sales, Transfer Orders</td>
</tr>
<tr>
<td>Leading Global ISV</td>
<td>90+ Countries</td>
</tr>
<tr>
<td></td>
<td>100 Subsidiaries</td>
</tr>
<tr>
<td></td>
<td>120000 Users, 45000 users live</td>
</tr>
<tr>
<td>2nd Largest Retailer in the world</td>
<td>20+ Million Customers / Other Masters</td>
</tr>
<tr>
<td></td>
<td>40 Million Transaction Lines</td>
</tr>
<tr>
<td>Leading Electrical Engineering Products</td>
<td>2 Legal Entities</td>
</tr>
<tr>
<td>Products Company in AU/NZ</td>
<td>360 Users</td>
</tr>
<tr>
<td></td>
<td>1TB+ Database Size</td>
</tr>
</tbody>
</table>