Actian Hybrid Data Conference
2017 London
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What’s New and What’s Next for Actian Zen
Desmond Tan
Director of Product Engineering
What Did We Learn from IoT market research?

- IoT market emerging but overpopulated with vendors with little differentiation
- IoT data is forecast to grow tremendously but only a small % will be stored
- Identify verticals to attack based on the following forecasts
  - Endpoints installed
  - Data retention rate (%)
  - Data retention years
- Businesses needs to be taught to unlock this value for direct or in-direct monetization
- Deriving value demands a bridge between operational technology (OT) and information technology (IT) to empower interaction
- Not all IoT-related TSPs could be partners but their partner could be the partner we are looking for
- Future in IIoT is more real-time processing, complex apps, less human and cloud connectivity
- Competition in vendor market goes beyond technology elements and competitive pricing
- The IoT processing market cannot be ignored
Looking through the lens...
Actian PSQL is characterized by...
• Small footprint – easily packaged
• Support Windows, Linux, Mac OSX
• Both SQL and NoSQL
• OLTP
• Reliable
• Low Maintenance
• High Performance
• Could be fully embeddable
• ZDBA
Some Zen Embedded DB use cases

Challenge:
Sage’s customer base is SMB companies. SMB tend not to have IT/DBA to manage complex application, Sage wants to provide OOTB applications at low cost to these companies. Deployment count are in the thousands therefore plug&play and high quality DMBS is a must to not incur high support cost.

Solution:
ZEN’s customizable install enables Sage to install ZEN silently without the need of a DBA. The reliable and high quality ZEN engine lends itself perfectly with Sage’s goal of low support cost. The multi-access architecture allows Sage to deploy the above applications either Standalone or Client/Server.

Challenge:
Tickets sales operations absolutely vital to WDW revenue and park experience. Sales of tickets cannot be adversely affected due to connectivity issues. Broken ticketing machines need to be replaced efficiently for the same reason.

Solution:
ZEN’s multi-engine configuration enables WDW’s box office to operate with or without connectivity to the main server for sales of tickets. The ZEN’s ZBA and simple install also enables WDW to replace broken box offices’ ticketing machines quickly with minimum downtime.
## Gartner Endpoints/Storage Forecast

<table>
<thead>
<tr>
<th>Subcategory</th>
<th>Endpoint</th>
<th>Total by 2020</th>
<th>Data Retention Rate (%)</th>
<th>Data Retention Rate (Years)</th>
<th>Total (Exabytes) in 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education Total</td>
<td>Student Attendance Tracker — P&amp;S Education</td>
<td>25.42</td>
<td>10</td>
<td>0.5</td>
<td>0.9</td>
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<tr>
<td>Government</td>
<td>Asset Tracking — Smart City</td>
<td>15.99</td>
<td>86</td>
<td>7.0</td>
<td>0.25</td>
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<tr>
<td>Healthcare Providers</td>
<td>Healthcare — RTLS Tags (Real Time Location System)</td>
<td>193.71</td>
<td>98</td>
<td>20.0</td>
<td>19.40</td>
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<tr>
<td>Transportation</td>
<td>Heavy Trucks — Subsystems</td>
<td>160.83</td>
<td>4</td>
<td>20.0</td>
<td>0.88</td>
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<tr>
<td>Utilities</td>
<td>Smart Electric Meters</td>
<td>664.25</td>
<td>12</td>
<td>10.0</td>
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<tr>
<td>Manufacturing &amp; Natural Resources</td>
<td>Connected Field Devices — Manufacturing</td>
<td>672.29</td>
<td>3</td>
<td>17.4</td>
<td>2.51</td>
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<tr>
<td>Banking &amp; Securities</td>
<td>ATM Machines</td>
<td>1.90</td>
<td>100</td>
<td>1.0</td>
<td>0.07</td>
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<tr>
<td>Retail &amp; Wholesale Trade</td>
<td>Electronic Shelf-Edge Labels/Product Tracking Tags</td>
<td>429.38</td>
<td>100</td>
<td>0.2</td>
<td>0</td>
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<tr>
<td>Energy</td>
<td>Thermostats/Environment Sensors</td>
<td>67.60</td>
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<td>0.01</td>
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<tr>
<td>Safety</td>
<td>Gas Detector/Smoke Alarms/Smoke/CO Sensors</td>
<td>60.37</td>
<td>100</td>
<td>10.0</td>
<td>0.01</td>
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<tr>
<td>Automotive</td>
<td>Automotive Subsystem</td>
<td>715.62</td>
<td>2</td>
<td>5.0</td>
<td>0.20</td>
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<tr>
<td>Physical Security</td>
<td>Commercial/Outdoor Security Cameras</td>
<td>967.48</td>
<td>1</td>
<td>1.0</td>
<td>42.88</td>
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<tr>
<td>Building or Facilities Automation/Other</td>
<td>Other Business Technology</td>
<td>688.43</td>
<td>18</td>
<td>3.0</td>
<td>0.18</td>
</tr>
</tbody>
</table>

Source: Gartner, 2017
### Gartner Endpoints Forecast and Actian Zen

<table>
<thead>
<tr>
<th>Gartner Industry Subcategory</th>
<th>Actian Zen Top 19 Revenue via Industry</th>
<th>Cross matching Actian Zen with Gartner</th>
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<tbody>
<tr>
<td><strong>Education Total</strong></td>
<td>Product Reseller</td>
<td>Healthcare</td>
</tr>
<tr>
<td><strong>Government</strong></td>
<td>Financial Services</td>
<td>Banking</td>
</tr>
<tr>
<td><strong>Healthcare Providers</strong></td>
<td>Technology</td>
<td>Manufacturing</td>
</tr>
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<td><strong>Transportation</strong></td>
<td>Healthcare</td>
<td>Government</td>
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<tr>
<td><strong>Utilities</strong></td>
<td>Computer Services</td>
<td>Manufacturing</td>
</tr>
<tr>
<td><strong>Manufacturing &amp; Natural Resources</strong></td>
<td>Computer Software</td>
<td>Government</td>
</tr>
<tr>
<td><strong>Banking &amp; Securities</strong></td>
<td>Retail</td>
<td>Agriculture</td>
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<tr>
<td><strong>Retail &amp; Wholesale Trade</strong></td>
<td>Other</td>
<td>Consulting</td>
</tr>
<tr>
<td><strong>Energy</strong></td>
<td>Unknown</td>
<td>Accounting</td>
</tr>
<tr>
<td><strong>Safety</strong></td>
<td>Banking</td>
<td>Leisure &amp; Hospitality</td>
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<td><strong>Automotive</strong></td>
<td>Other</td>
<td>Business Services</td>
</tr>
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<td><strong>Physical Security</strong></td>
<td>Manufacturing</td>
<td>Legal</td>
</tr>
<tr>
<td><strong>Building or Facilities Automation/Other</strong></td>
<td>Retail/Wholesale</td>
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## Actian Top Revenue Generating Industries

### Actian Zen Top 19 Revenue via Industry
- Product Reseller
- Financial Services
- Technology
- Healthcare
- Computer Services
- Computer Software
- Retail
- Other
- Unknown
- Banking
- Manufacturing
- Government
- Agriculture
- Consulting
- Accounting
- Leisure & Hospitality
- Business Services
- Legal
- Retail/Wholesale

### Actian Top 19 Revenue via Industry
- Technology
- Government
- Computer Software
- Financial Services
- Healthcare
- Automotive & Transport
- Business Services
- Telecommunications
- Product Reseller
- Industrial Manufacturing
- Business Services
- Retail/Wholesale
- Energy & Utilities
- Computer Services
- SaaS
- Legal
- Retail
- Media

### Cross matching Actian with Actian Zen
- Product Reseller
- Financial Services
- Technology
- Healthcare
- Industrial Manufacturing
- Banking
- Government
- Business Services
- Retail/Wholesale
- Energy & Utilities
- Computer Services
- SaaS
- Legal
- Retail
- Media
Gartner Endpoints Forecast and Actian

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</table>
Actian Hybrid Data Solutions powers Industrial IoT

Edge to core of hybrid data management, analytics and integration

Actian Zen Embedded Library
Actian Zen Embedded DB
Actian Vector Analytics Database
Actian X Hybrid Database

IoT Endpoints
IoT Platform or Gateways

Data Ingestion
Local Communications
Device Control

Data Ingestion
Long-Range Communications
Device Control

Integration

Enterprise Applications
Order Management
Warehouse & Inventory
Asset Management
Finance & Accounting
Manufacturing Operations
Field Service
ERP
CRM

Actian DataConnect for IoT Integration

Today in 80% of IoT cases 50% of an organization’s IoT budget is for Integration — Gartner

Source: Gartner, 2017
Actian Zen – Art of IoT Possibility

**Actian Zen IoT-ish features**

- Simple APIs (Ease of adoption)
  - REST API
- IoT-Core footprint (Limited onboard storage)
- Support for device OS platforms
  - Android
  - iOS
  - Windows IoT Mobile
  - Real-time OS - VxWorks
  - Embedded OS - OpenWrt
- Support for IoT-ish data
  - EXIF
  - Time series
  - Geospatial
  - JSON
- ZenToVector integration (Z2V)
- DeviceToEdge integration (D2E)
Actian Zen – Art of Possibility

- Actian Zen features

- Improve performance
  - Increase SRB for increase payload
  - Improve BSTEP operation
- Rearchitect B-operations
  - Is bopen needed?
  - Can extended operations be improved?
- Increase data file and client service request block size
- Support upsert
- Datafile merging
- Enhanced disconnected state ability
  - Ability to switch between local vs client/server access
  - Ability to stay disconnected using cached datafile
- In-memory DB support
- Web-based console for health monitoring and lightweight DB management
- Mircoservice Zen
- Built-in replication function
  - Leverage defrag logic
- Better tracing features
- Improved error reporting
### ZEN Engine Versions

<table>
<thead>
<tr>
<th>Features</th>
<th>ZEN IoT-Server</th>
<th>ZEN WGE</th>
<th>ZEN Server/Vx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install footprint</td>
<td>Reduced footprint of ZEN DB server engine 30MB&lt;&gt;40MB</td>
<td>Full size workgroup engine with docs 175 MB</td>
<td>Full size server engine with docs 175 MB</td>
</tr>
<tr>
<td>Engine process</td>
<td>Engine runs in it own process</td>
<td>Engine runs in it own process</td>
<td>Engine runs in it own process</td>
</tr>
<tr>
<td>User count</td>
<td>1 – 10 concurrent users</td>
<td>1 – 5 concurrent users</td>
<td>1 – 500 concurrent users</td>
</tr>
<tr>
<td>Access Method</td>
<td>Support access method that are available on SBC operating systems</td>
<td>All available access methods supported</td>
<td>All available access methods supported</td>
</tr>
<tr>
<td>Platforms (Operating systems)</td>
<td>SBC and IoT operating systems</td>
<td>Multi-platform (excluding SBC OS and IoT OS)</td>
<td>Multi-platform (excluding SBC OS and IoT OS)</td>
</tr>
<tr>
<td>IoT data support</td>
<td>Can be packaged with some native data types support libs (ex. GeoSpatial, EXIF)</td>
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</tr>
</tbody>
</table>
## ZEN IoT Engine Future Versions

<table>
<thead>
<tr>
<th>Features</th>
<th>ZEN IoT-Core</th>
<th>ZEN IoT-Lite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install footprint</td>
<td>&lt;2MB embedded engine library</td>
<td>2MB&lt;&gt;5MB embedded engine library</td>
</tr>
<tr>
<td>Engine process</td>
<td>Engine runs in the process of application</td>
<td>Engine runs in the process of application</td>
</tr>
<tr>
<td>User count</td>
<td>No user count</td>
<td>No user count</td>
</tr>
<tr>
<td>Access Method</td>
<td>Support only limited native Btrv API</td>
<td>Support native Btrv API and SQL</td>
</tr>
<tr>
<td>Platforms (Operating systems)</td>
<td>Multi-platform</td>
<td>Multi-platform</td>
</tr>
<tr>
<td>IoT data support</td>
<td>Can be packaged with some native data types support libs (ex. GeoSpatial, EXIF)</td>
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Actian – Art of Possibility

What are we trying to accomplish?
➢ Grow Actian Zen market in 2018 and beyond
➢ Establish Actian Zen in IoT market

What are the potential market?
➢ Existing customers
  • Outreach to existing customers on the “art of possibility”
➢ New embedded customers
  • Competitors takedown
  • ISAM (Cobol) application takedown
  • IoT application/platform/hardware vendors (Focus on IIoT – 97% data generated)
    ▪ Application vendor (example: supply chain application)
    ▪ ASIC, ASSP, AP and MCU vendors (example: Qualcomm) - This could be the Netware/Btrieve story we are looking for!

What must we deliver?
➢ Differentiate Actian’s solution
  • One key challenge in IoT platforms is the integration/transformation of data from edge to analytics
  • Actian’s solution offers seamless movement of data from edge to analytics
➢ An Actian Zen product that assist our current partners the expands their business
  • What is their competitors doing that their product will do better using Actian Zen
  • What value added services can they offer by adopting the new Zen features
➢ An Actian Zen product that could be recognized as the DB of choice for IoT market
  • Not a one trick pony like SQLite
  • Media data will dominate IoT data, Zen needs to dominate market as the best media processing DBMS. Could be the best media format data DB like Couchbase calling themselves “the NoSQL document-oriented database”
Actian – Art of Possibility

Possible market approach?

- Train Sales/SE/PS in pitching the Art of Possibility
  - Traditional software service provider strategy of “we build a product to solve your problem” with Big Data and IoT has expanded into “you don’t really have a problem but with our (and partners) product/s you can extract all the hidden value in your data to increase your business value”
  - Example talking point: What if your solution can be enhanced for real-time processing of OT data to reduce downtime and can be designed to push only relevant data from edge-to-cloud for analytical processing with IT data for:
    1. Operational improvement, building and solidifying customer relations (indirect monetizing)
    2. Developing and offering data/report, information-enhanced products or services (direct monetizing)

- More community outreach to educate community on Zen
  - Release different language (PHP, python, C#) sample code of using Btrieve 2 APIs on GitHub
  - Create challenges on TopCoder community of using Zen on IoT devices

- Start campaign on “Replacing SQLite with Zen to expand business”
  - Create challenges on TopCoder to test ease of replacement

What can you do to help?

- Identify customers for Actian
  - Existing - Train them in using Actian Zen to expand business
  - New – Competitors take down or looking for IoT expansion
  - Identify verticals to attack based on the following forecasts
    - Endpoints installed
    - Data retention rate (%)
    - Data retention years
Thank you!