EZSource / IBM Application Discovery

Accelerate Your Digital Transformation

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Digital transformation requires Hybrid Cloud + API Management + DevOps

- Maximize enterprise value by balancing the use of internal assets and external services at scale
  - Expose business critical services through APIs as your platform agnostic language within the context of a hybrid cloud
- Modernize business critical applications to gain business agility
  - Componentize them leveraging java, system APIs and Micro services
- Evolve applications and services at the speed of business
  - Leverage a cross-platform DevOps solutions to gain necessary speed and agility
The Digital Transformation Challenge

*Modernize business critical assets for the digital era with minimal time, risk and cost*

1. Many clients are risk averse and avoid modifying their aging business-critical applications
2. Changes are often manual and therefore error prone, relying on few employees with domain expertise
3. Applications are often poorly documented, resulting in increased risk and effort
4. Sizing change effort is difficult if the understanding of business-critical applications is limited
5. Ramping up new hires to work effectively with business-critical applications is often tedious
The Simplified Production Application Diagram
EZSource: Application Discovery

Unlock the value in your business critical applications

Unlock
Rapidly analyze and visualize your applications to make changes quickly, safely and efficiently

Empower
Improve productivity of new and existing resources through knowledge transfer and automated documentation

Appraise
Continuously assess and improve quality against consistent metrics and enforcement of coding standards
Unlock: Rapidly analyze and visualize the secrets of complex applications

*Analyze and visualize relationships between application components, data and jobs*

- Understand the structure of your business-critical applications across languages and environments
- Reduce risk and time and increase quality of changes through visual impact analysis integrated with your IDE
- Synchronize EZSource with latest changes in your source code management systems for a single source of truth

Reduce development change effort by up to 30%*  
Reduce project management by up to 50%*

*Based on EZSource client surveys 2013-15, guidance from industry analysts and industry reference frameworks
Empower: Improve productivity of your development resources

*Automate documentation, enable on-demand understanding, and aid sizing of change efforts*

- Accelerate knowledge transfer through **accurate, automated and on-demand documentation**
- Rapidly size change effort through insightful **root cause analysis**
- Aid new team members through comprehensive, accurate and consumable **application analysis** within the IDE

**Reduce time to size change effort by up to 80%***
**Reduce time to document your system by up to 90%***

*Based on EZSource client surveys 2013-15, guidance from industry analysts and industry reference frameworks*
Appraise: Improve quality through enforcement of standards and metrics

*Enforce coding standards and assess health of application portfolio through reports and dashboard*

- Deliver higher quality code by enforcing coding standards through reports and easy-to-use web interface
- Assess progress towards componentization through trend analysis of program complexity and maintainability
- Gain insight into the health and evolution of the entire portfolio through customizable role-based views

Reduce test-fix cycles by up to 50%*  
Improve application performance

* Based on EZSource client surveys 2013-15, guidance from industry analysts and industry reference frameworks
What does EZSource do?

• EZSource *retrieves, correlates and analyzes all application components* to provide in depth understanding.

• EZSource *automates aspects of the understanding, planning, execution and verification* of all ‘change’ activities.

• Engineered to **maximise the value and flexibility of existing application assets** in a wide spectrum of use cases:
  – API enablement and Digital Transformation
  – Assessment and planning
  – Cross applications dependencies
  – Support & Maintenance
  – Application quality improvements
  – Upgrade planning and enhancement enablement
  – Batch understanding
  – Impact analysis
  – Automated technical Documentation
  – Facilitates both internal, blended and outsourcing model
EZSource Key Functionality

**Graphical Analysis**
- Component dependencies and where-used – impact analysis
- Flexible hierarchy views, Filtering, search capabilities
- Cross Application and Modular inter-dependencies
- Flowcharts, Screen Flow, Data Flow, Control Flow
- Drill down – Cross Application, Paragraph, Statement

**Usage**
- Dataset Usage in Jobs
- Job Usage Inventory
- Program Usage in Jobs
- Procedure Usage in Jobs
- Program Structure (all supported languages)
- Variable Usage in Programs(all supported languages)
- Database Usage in Programs(all supported databases)
- Include Usage in Programs
- MQQueue Usage in Programs
- SQL Table Field Usage

**Reporting**
- Industry standard analysis – Halstead, McCabe, FP, Heuristic
- Configurable metrics and reports
- Coding and quality standards, dead code, impact analysis
- External reporting access
- Custom queries and outputs
EZSource High Level Architecture

*EZSource is based upon an open, federated architecture, with all application information delivered and stored in a single, open repository*

- **EZSource:Analyze** takes advantage of Eclipse functionality for cross-application analysis; analyzes online applications plus batch schedules/jobs/applications
- **EZSource:Dashboard** is web-based, providing management snapshots anytime, anywhere
- **EZSource:Build** and **Connect** provide certified integration to 3rd party tools for complete application data using an open repository platform as a “single version of the truth” for custom analysis, reporting and correlation
Analysis project concept – what is a project made up of?

- EZSource calls physical groupings of programs and other application source code components “analysis projects”
- Source code components are brought into the EZSource:Build Server via a number of mechanisms (SCM, agents, library scans etc.) and stored on the EZSource:Build Server
- Using the EZSource:Build Client, analysis projects are defined based on the available source code
- These analysis projects are then built (by an Administrator or Superuser) and made available through EZSource:Analyze for users to perform graphical analysis, run reports and execute custom SQL queries to generate the required analysis outputs
- An EZSource implementation typically has many analysis projects, used by different teams to drive specific analysis requirements
- Cross-platform and cross-application analysis is done by “joining together” analysis projects
Analysis project concept – client/server example
The “engine room” - EZSource:Server

Provides full lifecycle automation and ability to understand dependencies for all IT components in DevOps environments

- **EZSource:Server** is the common platform for the product suite (including Analyze and Dashboard). It administers the environment and includes:

- **EZSource:Build** is used by administrators and super users to define and manage analysis projects, including defining and configuring the various parsers

- **EZSource:Connect** is a collection of connectors used for importing or exporting information in/out of the EZSource repository and ensures **Real-time, automatic synchronization** with current source code so developers understand how functions are being performed
Graphical Analysis & Reporting - EZSource:Analyze

Analyzes and correlates the relationships between application components to automate application understanding, mapping and interdependencies

- All EZSource tools use this "single version of the truth" for analysis, reporting and correlation
- Operates across multiple languages and environments to produce consistent understanding and measurement
- Rich static code analysis functionality allows users to configure, define and manage own analyses through proprietary visualization layouts
- Cross platform analysis to visualize how mainframe and distributed applications are connected
Supported Environments

z/OS, z/VSE, Fujitsu VME

- Languages – COBOL, Natural, PL/I, CA ADS/Online, Assembler, Application Master
- Databases - VSAM, DB2, DATA COM, ADABAS, IMS/DB, IDMS
- Batch – JCLs, PROCs, Ctrl, SCL
- TP monitors – IMS/DC, CICS, IDMS/DC, TPMS
- Schedulers – IWS, A-Auto, CA7
- Messaging – MQ
- SCM – CA Endevor, Librarian, Serena ChangeMan ZMF, z/OS PDS
- AD tools – RDz

Distributed
- Languages - Java
- Coverity Connect

More In The Development Plan!
Configuring and implementing EZSource

- Installation process – typically 1 week
- Configuring, training and initial load – 1 to 4 weeks
  - ‘Project’ organisation
    - Typically 1 per application
    - Dev / Test / Prod versions and historical as needed
- Self sufficient for administration and usage after implementation
- Potential for product enhancements by agreement

- Required from client:
  - Platform / application knowledge during implementation
  - Cross application communication methods
A proven track record of driving customer transformations

**Aflac**

*Securely open existing mainframe insurance systems to web services and improve quality/maintainability*

- **Challenge:** Highly complex portfolio of mainframe applications with Japanese market specific challenges and multi-vendor delivery teams
- **Use Case:** Deploy EZSource to entire development group to drive better code quality and faster transformation
  - Analyzed data flows/interdependencies across applications to enable data cleansing. Reduced analysis effort by 30%.
  - Defined and implemented core coding standards to improve quality

**RBS**

*Batch application architecture, workflow priority, and dependency re-engineering*

- **Challenge:** Highly complex batch application portfolio containing over 330,000 batch jobs and 100 million lines of code
- **Use Case:** Implemented as the repository of record, with application source data fed from various source systems, via agents to the mainframe source code management and batch scheduler
  - Transformation of batch portfolio to reduce risk and improve resiliency
  - Improve maintainability of batch processing through simplification
A proven track record of driving customer transformations

**Mainframe complexity and requirement to replace Natural with COBOL**

- **Challenge:** Mainframe complexity and need to replace Natural with COBOL, COBOL, Assembler, CICS, Adabas Natural, DB2, TWS environment
- **Use Case:** Increased application modernization plans
  - EZSource and RDz to drive productivity

**Rapidly understand existing applications in order to plan and implement a CRM project within budget, timescales and the resource**

- **Challenge:** many of the aspects of the existing applications where not understood or documented adequately in order to plan the project and understand the application boundaries for the proposed architecture.
- **Use Case:** EZSource automated the delivery of a complete set of technical application documentation, application metrics and business rule understanding for the key processes – discovering the actual transaction logic and data involved.
- EZSource helped the reuse and integration of the existing COBOL, Assembler IDMS applications with the new open systems platforms to achieve the program milestones with minimum risk.
EZSource And z/OS Connect EE - Accelerate Your Digital Transformation

IBM EZSource

ADF / ADI / EZSource

IBM zOS Connect EE

IBM API Connect

Discover And Understand Your z/OS Assets

Refactor, Test And Re-Deploy If Needed

Create Business APIs For What You Discovered

Manage And Control The APIs

An end to end solution to speed digital transformation
The Real Cost Of Offloading - Mid-sized Offload Project

6 processors
(1,660 MIPS)

176 processors
(800,072 Performance units)

$25.4M TCO (5yr)

29x more cores

482 Performance Units per MIPS

$17.9M TCO (5yr)

6x 8-way Production / Dev
2x 64-way Production / Dev Application/MQ/DB2/Dev partitions

2x z900 3-way Production / Dev / QA / Test

$25.4M TCO (5yr)
The Real Cost Of Offloading - Small-sized Offload Project

2x 16-way Production / Dev / Test / Education
App, DB, Security, Print and Monitoring
4x 1-way Admin / Provisioning / Batch Scheduling

z890 2-way Production / Dev / Test / Education
App, DB, Security, Print, Admin & Monitoring

36 Unix processors
(222,292 Performance Units)

41x more cores

Almost 5 Year Migration

670 Performance Units per MIPS

$17.9M (4 yr. TCO)

0.88 processors
(332 MIPS)

$4.9M (4 yr. TCO)

Plus:
2x HP SAN Servers (existing)
Many (existing) Windows servers

No Disaster Recovery
Latin American Bank reduces ETL costs by co-locating data with DB on mainframe

Client
- 30% of MIPS charges were generated by data FTPed amongst multiple x86 and VSE DBs
- Wanted to aggregate all data into a single system of record to reduce charges
- Existing VSE environment could not support a larger DB
- Asked IBM to evaluate the cost of MF modernization vs. a Microfocus distributed solution

Solution
- Update mainframe environment to z/OS for DB2 support of large data volume and lowest TCO
- Microfocus solution increased SW license costs (greater cores required for distributed environment) and an incremental $11M in Microfocus charges over five years.

Benefit
- Savings of $29.2M over five years with upgrade to z/OS and DB consolidation

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<tr>
<th>Assessment Type</th>
<th>Description</th>
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<td>Cloud Assessment</td>
<td>Perform a Health Check to find the right private, public or hybrid cloud solution</td>
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<td>Examine workload size and activity, SLA and provisioning requirements, and instance costs</td>
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<tr>
<td>Workload Placement Assessment</td>
<td>Consolidate, offload, and place new workloads on alternative platforms</td>
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<td>Exploit and compare platform attributes to optimize workload performance and costs</td>
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<td>Business Value Assessment (BVA)</td>
<td>Understand solution attributes and how business requirements are mapped</td>
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<td>Quantify financial benefits and compare to alternatives to determine the most compelling case</td>
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<tr>
<td>Mobile Assessment</td>
<td>Mitigate high-volume, low-value mobile transaction costs</td>
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<td>Evaluate the effects of throughput, response time and other KPIs in mobile topologies</td>
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<td>Analytics Assessment</td>
<td>Determine the most cost-effective infrastructure for analytics solutions</td>
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<td>Exploit platform attributes and efficient storage solutions for Analytics and Big Data</td>
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<td>Chargeback Analysis</td>
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<td>Identify and overcome chargeback policies that drive adverse IT decisions</td>
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<td>IT Best Practice Benchmarking</td>
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<td>Improve forecast and actual spend</td>
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Use a **business case** to make a **technically** and **financially based IT decision**

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