How to accelerate digital transformation of z/OS based applications

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Why do we have an issue?

The perception of mainframe applications by the business and IT management is often based on a lack of understanding of current realities / possibilities and a perception it is not ‘modern’

The reality is:

• Most large organisations (and analysts) have taken the second vow based on TCO, scale, security
• Frustrations remain with application functionality and rate of change
• Outsourcing has only changed the day rate, not innovation
• The mainframe and distributed applications teams struggle to be in step

This session will examine the issues and potential solutions to these issues
Agenda

• The challenges
• The opportunities
• Potential solutions
• IBM Application Discovery positioning
• Use cases and customer example
Barriers to change

- Previous generation (tightly coupled and monolithic) Software Architecture is the primary cause for slow business software time to delivery for Systems of Records (SOR’s)
  - It takes too much time and resource for impact analysis and testing of Systems of Record
  - In-house application knowledge has decreased
- Unresponsive mainframe software change delivery processes and tooling
  - Processes and tooling mostly unchanged in several decades
  - Low Application Development investment
  - Impact analysis and testing, in most organizations is still a manual process. Unacceptable with today’s need for organizational agility
  - High cost of application support starves innovation budget

But doing nothing is increasing cost and risk with no benefit!
- Gartner reports 60% to 80% of all software development is enhancements to or maintenance of existing projects. Amounting to a 10% increase every year.
Modernization options and opportunities

• Move to a component architecture
  – Break apart current monolithic structure
  – Separate inputs / business logic / database
  – Understand component / application relationships
  – Adopt web services / API strategy
  – Understand and manage application quality

• Understand opportunities for modern processes and tooling
  • DevOps
  • Reduce cycle times – scope / development / test / deploy
  • Application Discovery / IDE / Testing / CI
Traits of a modern application ready to be used to enable digital transformation

- It has maintainable and testable code
- It is modular and component-based
- It provides a rich user interface
- It uses Module-View-Controller design patterns so it has separation of presentation, flow control, and business logic
- It is easily responsive to new business requirements
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 time consuming
Digital transformation requires Hybrid Cloud + API Management + DevOps

To execute on this strategy organizations need to:

- 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
Agile development leverages multi-speed IT in an API Economy

- Speed and agility to drive innovation and growth
- Scaling your institutional knowledge and processes

IBM can help customers stay integrated and in sync as they progress
Exposing Enterprise Services as APIs

**SOA (Service Oriented Architecture)** efforts have been driven by achieving developers’ productivity gain and enabling reuse of functions, i.e., focused on development of services.

**API Management**, on the other hand, is driven by consumption of these services, i.e., improving consumption and performance of these services for both external and internal developers of applications accessing these APIs, while also retaining control by the providers of these APIs.

- Improving **consumability** includes listing APIs in a browsable/searchable catalog, and making it easy to register applications with the right entitlement level.

- Retaining **control** includes not only enforcing entitlements and managing workloads, but also providing insight based on access history and accountability for chargeback.
How IBM Application Discovery fits into the API Economy

• Source code analysis
• Application understanding
• Application metrics

• Reduce cost
• Lower risk
• Improve quality
IBM Application Discovery - Common Use Cases

1. Cost reduction – redeploy from support to innovation
2. Application modernization
   1. Monolithic to component
   2. API enablement
   3. Resource optimisation (online and batch)
   4. Business logic
   5. Code refactoring
3. Outsource governance / management
   1. Change management
   2. Governance
4. Knowledge / documentation – external, new hires, redeployment, compliance
5. Application quality
   1. Coding standards
   2. Performance
   3. Resilience
6. DevOps
IBM 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
IBM Application Discovery key capabilities

- **Automation** automatically builds and refreshes analysis / metrics as the source code is updated
- **Analysis** is provided both graphically and report based both at an inter-application level through to detailed understanding across all application components, including cross platform
- **Comprehensive** analysis of both the batch and on-line applications provides a complete understanding
- **Integration** with other key technologies such as IDz, SCM’s and Schedulers provides a vital component within DevOps
Application Discovery High Level Architecture

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

- **AD:Analyze** takes advantage of Eclipse functionality for cross-application analysis; analyzes online applications plus batch schedules/jobs/applications

- **ADDI:Delivery Intelligence** is web-based, providing management snapshots anytime, anywhere

- **AD: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
Evolving Traditional Applications ...
... By Automatically Understanding Complex Application Interfaces ...
A proven track record of driving customer transformations

Market leading Japanese Insurer (Life & General)

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

- **Challenge:** Highly complex portfolio of mainframe applications with Japanese market specific challenges and multi-vendor external partners

- **Use Case:** Deploy AD to entire development group to drive effective API enablement, improve 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
  - Completed initial API enablement within time and budget
IBM and a client worked together to build a compelling business case based on IBM experience and industry analyst feedback. The resulting case identified a conservative 22% improvement in overall development team productivity.

**Targeted Productivity Gains**

<table>
<thead>
<tr>
<th>Team Roles</th>
<th>FTE Breakout</th>
<th>Rational Solution Productivity Improvement Factor</th>
<th>Saved: Minutes/Person/Day</th>
<th>Resulting Annual FTE Productivity Improvement</th>
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<td>Admin</td>
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<td>QA Analysts &amp; Testers</td>
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<td><strong>Totals</strong></td>
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<td><strong>22.0%</strong></td>
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Summary and Q&A

1. Application architecture for the mainframe is mostly still based on original designs / constraints
2. Business pressures are forcing modernization
3. Change and investment is needed – increased focus and priority
4. Automated tooling and processes are mature and complete enough to be adopted
   • A clear vision for the future
   • Achievable in defined steps
   • Clear business and IT oriented ROI
Thank you!