NTT DATA

Trusted Global Innovator

NTT DATA Application Modernization Services
Mainframe Application Re-hosting on Azure
We get it right the first time!

July, 2018

NTT DATA Services

More than your traditional IT services provider

NTT Group

275,000 professionals | $105B
#15 World's Most Valuable Brands[1]

NTT DATA

110,000 professionals | $16B
Top 10 global business & IT services provider

NTT DATA Services

50,000 professionals
#9 on Consulting Magazine's
   "Best Firms to Work For" List[2]

- NTT Group operates **240+ data centers** worldwide

- Process **100 million healthcare claims** annually

- Serve **25 of the leading financial institutions** in North America

- Apply **45+ years** of **applications experience**

- Serve the **top 10 automotive** companies worldwide

- Support **3.9+ million end users** and **11+ million service desk** contacts annually

- Manage **300+ million security identities**

- Serve more than **50 federal agencies** and military branches

[1]Source: "Brand Finance Global 500 (2017)
[2]Source: "The 2017 Best Firms to Work For," *Consulting Magazine*, Sep 12, 2017

Application Portfolios Need to Evolve

Great CX is mandatory

"…by 2020, **customer experience** will overtake everything, including price and product quality as the top brand differentiator."

CIO.com, Nov. 2017

Enabling innovation through technology

1. Lower IT/business costs
2. Improve IT sustainability
3. Improve customer service
4. Introduce new IT-led products and services
5. Make business processes more efficient

What are the primary ways your org. plans to innovate in 2017? InteropITX Research Report, Mar. 2017
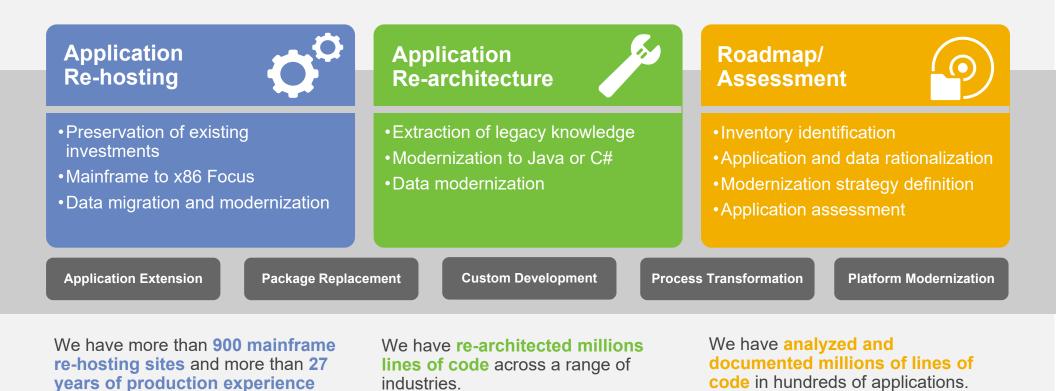
80%

of IT and business leaders say outdated technologies are an existing or emerging barrier to achieving expected results from digital technology initiatives.

2017 Global Digital IQ® Survey, PWC

CIOs are under constant pressure to maintain an application portfolio that enables digital initiatives, drives analytics and insights, and operates at an optimized level.

NTT DATA: An experienced successful modernization practice

Application Re-hosting

- Preservation of existing investments
- Mainframe to x86 Focus
- Data migration and modernization

Application Re-architecture

- Extraction of legacy knowledge
- Modernization to Java or C#
- Data modernization

Roadmap/ Assessment

- Inventory identification
- Application and data rationalization
- Modernization strategy definition
- Application assessment

Application Extension	Package Replacement	Custom Development	Process Transformation	Platform Modernization

We have more than **900 mainframe re-hosting sites** and more than **27 years of production experience** worldwide.

We have **re-architected millions lines of code** across a range of industries.

We have **analyzed and documented millions of lines of code** in hundreds of applications.

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Application Re-hosting

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NTT DATA Application Re-Hosting Services

Migrate legacy mainframe applications onto cost-effective, standard platforms while protecting valuable business logic and data investments

Principles

- Preserve existing business logic and application investments while reducing costs

- Minimize disruption; reuse existing application development skills & end-user interfaces

- Use products and services intended to minimize changes in the application on the new Linux / UNIX platform

- Address the complete environment, including third-party tools, to reduce risk and enable success

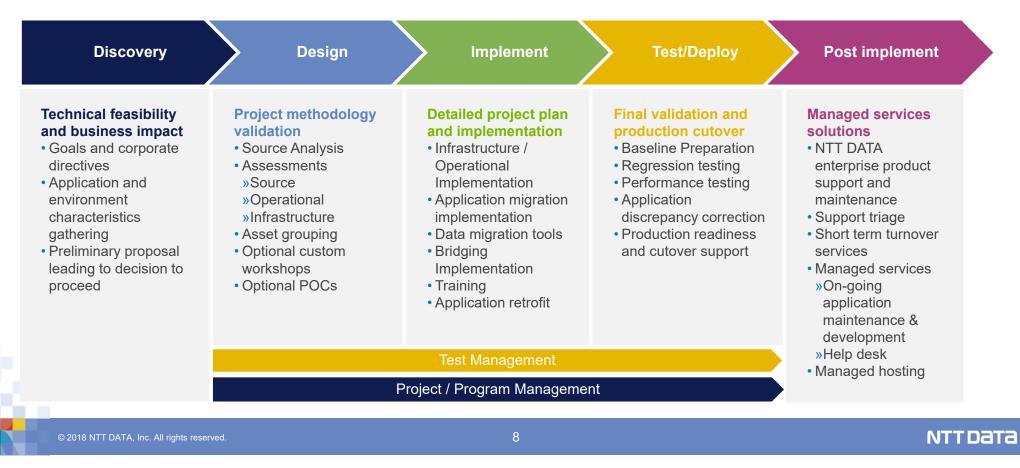- Leverage and integrate with new applications

Results

- Significant cost savings potential
  - Many customers cut costs 30-70% (HW, SW, mainframe specific support)
  - Fund future innovation by lowering operating costs

- Re-hosted applications run natively on updated target platform
  - Cloud, physical or virtualized servers

- Evolutionary step forward
  - Destination or part of larger journey

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NTT DATA Re-hosting Product Suite: UniKix

Development Tools

IDE

NTT DATA Re-Hosting IDE for Visual Studio and Eclipse allows development of COBOL/CICS/SQL/JCL applications, including those deployed on the Cloud.

File Editor

NTT File Editor is used to do direct maintenance of VSAM and sequential files**.**

Map Editor

NTT Map Editor is used for maintenance of existing BMS or MFS screens and for development of new BMS maps for CICS or MFS maps for IMS.

Runtime Components

TPE

NTT TPE provides an execution environment for CICS and IMS online applications using BMS, MFS, VSAM, IMS-DB, SQL, MQ, and other interfaces.

BPE

NTT BPE provides an execution environment for JCL using steps that run programs, utilities (SORT, FTP, EMAIL, COPY), interfacing with job schedulers.

TSF

NTT TSF implements the security provided by RACF for CICS, using LDAP or RDBMS as the repository.

COBOL

NTT COBOL provides a compiler and runtime environment for COBOL applications.

Management Tools

TPE Manager

NTT TPE Manager allows for the administration and monitoring of multiple TPE regions through a centralized graphical console.

BPE Manager

NTT BPE Manager allows for the administration and monitoring of multiple batch subsystems in on-premise servers or the Cloud.

TSF Admin

NTT TSF Admin provides administration of the security environment (password reset, account unlocks, user maintenance)

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NTT DATA Re-hosting Approach

Proven project methodology & risk mitigation process: NTT DATA follows a proven migration methodology consisting of many flexible service offerings that are tailored to meet the business objectives and technical needs of an organization. The image below shows many of the services that NTT DATA can offer, including many that will be proposed for the mainframe re-hosting project.

Discovery	Design	Implement	Test/Deploy	Post implement
Technical feasibility and business impact	**Project methodology validation**	**Detailed project plan and implementation**	**Final validation and production cutover**	**Managed services solutions**

• Goals and corporate directives
• Application and environment characteristics gathering
• Preliminary proposal leading to decision to proceed
	• Source Analysis
	• Assessments
	  »Source
	  »Operational
	  »Infrastructure
	• Asset grouping
	• Optional custom workshops
	• Optional POCs
		• Infrastructure / Operational Implementation
		• Application migration implementation
		• Data migration tools
		• Bridging Implementation
		• Training
		• Application retrofit
			• Baseline Preparation
			• Regression testing
			• Performance testing
			• Application discrepancy correction
			• Production readiness and cutover support
				• NTT DATA enterprise product support and maintenance
				• Support triage
				• Short term turnover services
				• Managed services
				  »On-going application maintenance & development
				  »Help desk
				• Managed hosting

Test Management

Project / Program Management

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NTT DATA Application Modernization Services

Unique and patented NTT DATA IP
- Broad range of market-tested tools and software

End-to-end solutions
- Software and services
- Flexible engagement model
- Integrated with NTT DATA Services IT outsourcing, maintenance, testing and development teams

25+ years of experience
- Proven track record of success
- Established methodologies
- Trusted partner network
- Single point of accountability
- Domain and package expertise
- Global and local resources

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NTT DATA Services Expertise

1,200
Cloud Architects, Practitioners & Engineers

400+
Combined years of Microsoft Azure experience

Microsoft Cloud Solution Provider (CSP) Partner

Leader
Cloud Infrastructure Migration Services
NelsonHall NEAT evaluation, 2017

Microsoft

4300+
technical team members supporting the Microsoft stack

Leader
Cloud Professional Services

IDC MarketScape: Worldwide Cloud Professional Services 2016 Vendor Assessment

30+
NTT DATA Cloud Advisory engagements in the last 24 months

Microsoft Gold Partner

Compliance & Certifications

HIPAA
Health Insurance Portability & Accountability Act

SAS 70 Type II

PCI DSS COMPLIANT

TÜV SÜD ISO 27001

ITIL

60+
Dedicated Product development experts building modernization and automation solutions.

Strong Performer
Hosted Private Cloud Services
The Forrester Wave™ North America, 2017

2K+
Public Cloud instances supported

500+
Cloud Customers managed

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