

The Era of the Now

Embracing Two Speed Integration by IBM

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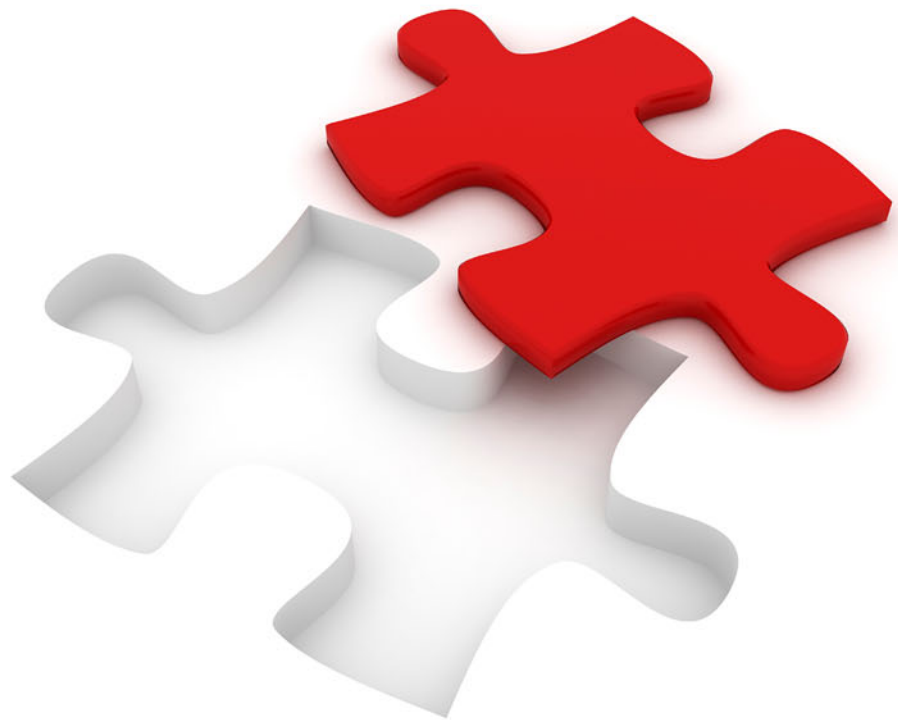
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Moving beyond survival mode to become a market leader in today's era of “digital disruption”

Highlights

Demands of the digital business have created and accelerated the notion of the *bi-modal* IT organization where one part, the *Steady Speed*, delivers enterprise-strength IT services, and the other, the *Fast Speed*, takes advantage of new digital business opportunities.

- ▶ The digital business today requires a new approach to continuously use digital technologies to both create new sources of value for customers and increase operational agility in service of customers.
- ▶ Two Speed Integration from IBM brings together integration products and services purposely designed for the needs of both Steady and Fast IT, with a clearly-defined interface between the two, ensuring that both sides work cooperatively together.

In the modern world, everyone is becoming digitally connected. Everyone seems to have a smart phone, everyone is socially networked, everyone can express a sentiment in seconds, can search the Internet and form an instant opinion on any topic, and everyone can search the market and make informed buying decisions on the spot.

This move to be digitally connected is happening with your customers, your partners, and your employees. And to stay relevant, you need your business to be digitally engaged. If you fail to capture the digital channel, you risk becoming *digitally disrupted*. And your customers will defect to companies who can engage them through the digital channel.

This is more than a technology challenge, and although it might be tempting to approach the problem project by project, this tactic typically leads to both organizational and technology chaos, which can both increase costs and slow down opportunity for future innovation and growth.

Enterprises should treat this challenge as a strategic initiative that can allow elements of your organization, business model, and technology to transform—your *digital business transformation*.

To survive in an age of digital disruption, those companies at the forefront of innovation are those who constantly find new ways to transform their organizations so that they successfully blend technology, business, and entrepreneurship. These organizations will be the ones leading their brands to the front of the pack.

Living with digital disruption is the new normal state. Indeed we expect to be in a constant state of disruption, which requires us to also be in a constant state of innovation. Moving beyond simple survival to being a market leader in today's digital disruption era means bringing together the right mix of technology, business acumen, and entrepreneurship. The most successful companies frequently affect effective organizational change to take the best advantage of new opportunities.

IT and the IT organization are essential elements of the *digital business transformation*, but we need to think of IT in a new way. We need to design the IT organization to be responsive and to meet the business needs of this new digital world. Enter *Two Speed IT*.

Two Speed IT: The CIO's strategy for a digital business

For today's CIO, embracing the digital business transformation is essential. This means becoming aligned with the business, and teaming with the CMO to set the business and technology strategy. Failure to embrace this challenge will see the CIO relegated to a non-strategic keeping the lights on role or to being replaced by someone who can meet these strategic needs.

The successful CIO needs a strategy that includes a Two Speed IT approach.

What is Two Speed IT?

Today, we're seeing engaging mobile applications where users have come to expect instant gratification. These applications blend the digital user (past purchase history, user preferences, and so forth), with the real-time user (where they are, who they are with, and who is speaking about them). These two worlds are coming together to form *the era of the now*.

The notion of *Two Speed IT* is a way for businesses to be able to support these types of engaging applications. One part, the *Steady Speed*, delivers enterprise-strength IT services, and the other part, *Fast Speed*, takes advantage of new digital business opportunities. However success comes only through joining these two speeds together with a "meets in the middle" approach.

Steady Speed

Steady Speed IT runs stable, mission-critical systems that are always up and always on. Steady speed IT tends to run on dedicated or protected infrastructure to handle predictable, high volume workloads. Steady Speed IT uses approaches and methodologies that provide control, security, and transactional integrity to ensure that critical service level agreements (SLAs) and business needs are met.

Steady Speed is commonly associated with premise-based systems, because most companies have existing investments for this type of IT within the enterprise boundary. Steady Speed is not about a location but a method. So while commonly referred to as the *premise-based systems*, it is not limited to the enterprise data center in any way.

Fast Speed

Fast Speed IT uses agile, fast, just safe-enough techniques to explore, adopt, and adapt to new opportunities and embrace the ones that stick. Fast Speed is characterized by rapid iteration and prototyping and takes advantage of emerging tools and platforms.

Experimental activities that are low risk and low cost can yield differentiating returns by pushing on the innovative curve.

Fast Speed is commonly associated with cloud-based systems. The ease of provisioning and acquiring applications and infrastructure in the cloud, lends it to fit nicely with the Fast Speed work. However, it is not tied to the cloud and a fast zone and can be implemented on premises with the necessary method and technologies.

Meeting in the middle

Firms looking to gain and maintain competitive advantage find that it is no longer sufficient just to live in the Steady Speed world. Conversely, breakthroughs achieved in the Fast Speed domain do not deliver real business value until they are integrated with core systems. The "meet in the middle" methodology is based upon controlled, appropriate real-time access to core systems and the movement of digital assets to the edge for use in Fast Speed initiatives.

Digital businesses continuously use digital technologies to both create new sources of value for customers and increase operational agility in service of customers.

Two Speed IT in action

The digital business requires a new approach. For digital business, it is not just about releasing a new mobile app. It is a fundamentally different way of doing business and demands a new approach to the technologies that enable and drive this business strategy. It requires a rethink of the way we manage data and integrate systems for the digital era.

The new approach: Becoming a digital business

Becoming a digital business is a constant journey of evolution rather than revolution. We want to use and reuse the data and application capabilities throughout the business, whether premise-based or cloud-based. As a digital business, we need to reuse application capabilities in new contexts, interact with business data throughout the business, and get notified when something important or relevant to us changes.

To achieve this goal, we need a mechanism to create the digital assets that can be used to deliver the use cases of the new cloud and digital programs. This means finding and connecting to our systems of record, systems of engagement and systems of insight. It also means getting and preparing the key business assets as data, APIs, and events.

This step of creating digital assets (data, API, and events) in a consistent and cohesive manner is crucial to providing a backbone that our different digital initiatives can be driven off. In some cases, existing assets might be digital ready or can be ready with minor modifications such as filtering the data being served. In other cases, we must think about the consumption paradigms and patterns to ensure the assets we want to expose are relevant and useful.

After the digital assets are created, it is now possible to implement the use cases of our digital program. These use cases include building engaging apps, extending business applications, integrating to create a suite of business applications, preparing and refining data for analytics, and commercializing data and APIs.

Integration underpins the digital business

It becomes clear that the creation and management of the digital asset is an integration problem that can make or break the digital business. Common user stories, in this paradigm, all hint at integration as a main aspect. For example:

- ▶ As a mobile developer, I want to build a new engaging app that uses existing business assets.
- ▶ As a data knowledge worker, I want to extract information from different systems and prepare them for reporting or movement to the analytics platform.
- ▶ As a SaaS administrator or business operations worker, I want to bring up a new SaaS app with the

necessary data and keep it synchronized with other apps and systems.

- ▶ As an enterprise integration and data specialist, I want to safely and securely expose enterprise assets for use in digital programs.

These stories require integration tasks both in the Fast and Steady Speed zones, performed by different roles, and still managed in a consistent and comprehensive manner. This is what Two Speed Integration is about. Powering the digital business and Two Speed IT requires Two Speed Integration.

This is what Two Speed Integration is about—powering the digital business—and Two Speed IT requires Two Speed Integration.

The solution: Two Speed Integration from IBM

Two Speed Integration from IBM® brings together integration products and services that are purposely designed for the needs of both Fast and Steady IT. This design has a clearly-defined interface between the two, which ensures that both sides work cooperatively together (Figure 1).

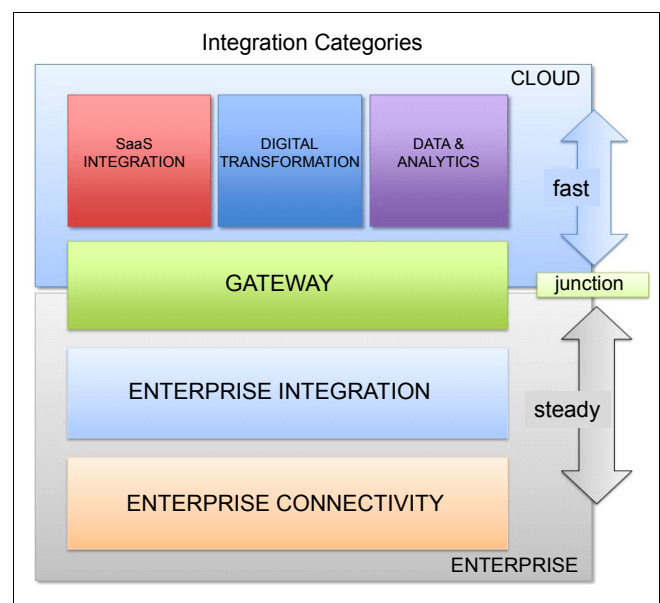


Figure 1 Integration categories

Fast Speed integration

Fast Speed integration has three key use cases, which also target three different types of users:

- ▶ Software as a service (SaaS) integration for a SaaS admin
- ▶ Digital transformation for a mobile or cloud app developer
- ▶ Data and analytics for a data knowledge worker

SaaS integration

As businesses increasingly use SaaS applications for varying business needs, the need for a clear SaaS integration strategy has become critical. SaaS integration is responsible for the integration of existing systems with the rapidly changing and highly customized SaaS applications by:

- ▶ Ensuring the applications are loaded with the right information so that the business users can derive the necessary value of the application
- ▶ Synchronizing with existing and new systems to avoid information getting stale or out of date, which has implications on business decision making
- ▶ Exposing new insights from these applications to be used by other platforms for initiatives, such as mobile application development and analytics

Digital transformation

The world is going digital, our customers are going digital, our employees are going digital, our partners are going digital. Our business needs to be digital so that we stay engaged, maintain customer satisfaction and maximize new business opportunities.

This leads us to the realization that rather than a specific team or a specific app, the success of digital transformation is determined by creating a portfolio of capabilities and enabling broader communities including third parties to innovate around our business goals.

In this environment fast speed integration become essential and it is all about getting the right digital assets, APIs, data and events to the fingertips of the app developer enabling them to:

- ▶ Find the best available APIs and data sources for their apps
- ▶ Define new APIs they need for their apps
- ▶ Create local versions of the API to develop their apps

- ▶ Rapidly iterate and update API definitions as they develop and trial their apps
- ▶ Securely connect to enterprise services and data to create production APIs

Data and analytics

Enabling business operation workers and data knowledge workers to access and prepare information for their day to day business tasks (reporting, analysis, and decision making) is a critical business requirement. This is driving the needs for new ways of interacting with systems, shaping the data and preparing for movement or use. This category is about supporting these initiatives as well as the new trends to cloud data marts and the necessary movement and quality capabilities needed to do this efficiently and with trust and provenance.

Steady Speed integration

Steady Speed integration is the domain of the enterprise IT teams responsible for connecting, integrating and governing applications and data sources across the enterprise. The Steady Speed integration teams will be concerned with business operations requirements around continued security of data, availability of data, and availability of business applications.

We can consider Steady Speed integration to include both enterprise connectivity and enterprise integration.

Enterprise connectivity

This domain caters to the connectivity capabilities required to work with your existing business assets, ranging from IBM z/OS® applications, through COTS packages, such as JD Edwards, to SWIFT exchange services. Enterprise connectivity provides the intelligent adapters and connectors to ensure you efficiently leverage the value in these systems. It also handles the complexity of interacting with large SOR and ERP type systems that have evolved over a long period of time.

Enterprise integration

Enterprise integration provides the enterprise-strength capabilities for delivering information to the right place at the right time by enabling the cooperation and coordination between the enterprise business systems.

Most customers will have implemented their enterprise integration as an service-oriented architecture (SOA).

This approach positions them well for two speed IT where SOA services can be assembled into APIs.

Connecting the two speeds of integration: Meeting in the middle

The Steady and Fast zones are critical for supporting the conflicting pressures on the IT department. But the real benefits are gained from the interconnection of these zones. To enable this connection, we need well-defined interfaces of APIs and data that cross between the two speeds.

Where Fast and Steady Speed IT are also separated by use of cloud and on premise technologies, the Gateway provides the mechanism to secure and manage the interconnections at the boundaries of the cloud and enterprise. It handles the API, services and cloud connectivity and ensures this is done securely with policies and controls across the boundaries and borders in a seamless way.

What's next: How IBM can help

This section describes the IBM product offerings in each category that enable implementation of Two Speed Integration (Figure 2).

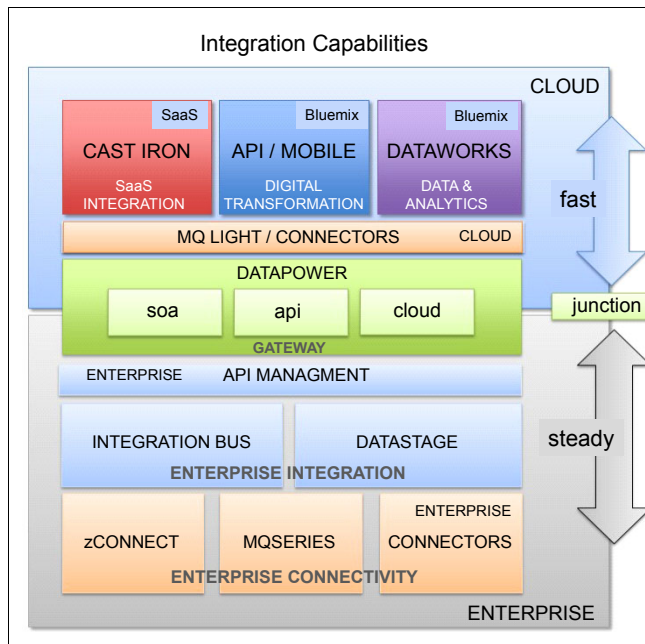


Figure 2 Integration capabilities with product mappings

Steady Speed

The following IBM products enable Steady Speed integration capabilities:

- Gateway
 - **IBM DataPower®** is a purpose built security and integration gateway that is available as an appliance or virtual appliance. It features configuration-driven policy for management of security and SLAs enforced on a purpose-built, DMZ ready platform.
- Enterprise Integration
 - **IBM Integration Bus** is a core integration component, which typically sits in the heart of the data center and provides any to any connectivity supporting simple and complex data formats. It provides a rich and robust feature set enabling real-time integration use cases at scale across messages, events, and documents.
 - **IBM WebSphere® Application Server** is used in conjunction with Integration Bus to provide a Java EE SOAP Gateway for processing Java/WS-* transaction scenarios.
- Enterprise Process
 - **IBM Smarter Process** capabilities are focused on digitizing and automating both business process and decisions. A customer has not gone through a digital transformation unless they have done this. IBM's business process management and decision capabilities interact with enterprise systems. An increasingly popular pattern is to expose business processes and decision end-points as APIs by using **IBM API Management**.
- Enterprise Connectivity
 - **IBM MQ** is purpose built messaging middleware which facilitates the assured, secure and reliable exchange of information between applications, systems, services, and files by sending and receiving message data via messaging queues. It delivers Universal Messaging with a broad set of offerings to meet enterprise-wide messaging needs, as well as connectivity for the internet of things and mobile devices.

Fast Speed

The following IBM products enable Fast Speed integration capabilities:

- ▶ SaaS Integration
 - **IBM Cast Iron®** provides integration capabilities that are geared towards the integration of SaaS properties with each other and on premise systems. It provides a repository of pre-built templates for hundreds of common integration patterns to simplify and accelerate the creation of solutions.
- ▶ Digital Transformation
 - The **Bluemix Integration Services** provide the capabilities needed for digital transformation projects (Figure 3). Digital transformation is all about APIs, the integration services are about enabling the life cycle of the API from define (with Swagger) through create, assemble, secure, manage, socialize, and distribute.

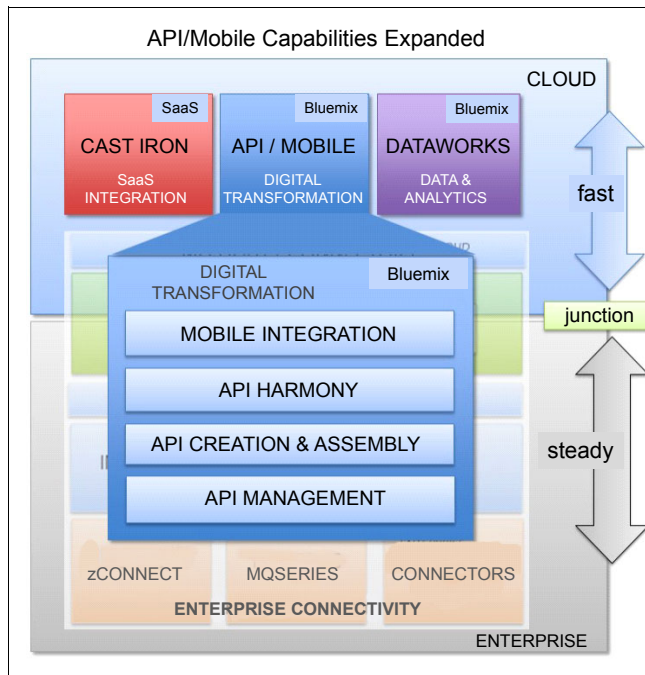


Figure 3 Expansion of Digital Transformation

- **Mobile Integration** delivers an iOS and hybrid app integration capability, enabling a mobile client to easily access APIs on a mobile backend (IBM Bluemix™), that can connect to a variety of back end sources.
- **API Harmony** finds a match for the right API for your app. Built from a corpus of the world's public APIs, it understands relationships

between already selected APIs and new ones being searched for.

- **API Creation and Assembly** provides the ability through a new separate service and user interface to instantiate a connector, generate an API, and create an API Assembly. Define APIs with Swagger, create local APIs, connect back to system of record data and services, and aggregate data.
- **API Management** provides the ability to publish, promote, and oversee APIs in a secure, scalable environment. It also includes the creation of end user support resources that define and document the API.
- ▶ Data and Analytics
 - **IBM DataWorks** provides the simple experience for data knowledge workers and business operations workers to conduct their data preparation tasks. It also provides the services around data preparation that developers can use ranging from data validation to cleansing.
- ▶ Cloud
 - **Cloud Connectors**, a core microservice, provides a mechanism to connect to and coordinate work across the different applications in the cloud and SaaS ecosystem. These connectors are leveraged by the different integration and API capabilities to simplify and accelerate tasks.
 - **IBM MQ Light** is another core microservice that provides the capabilities for app messaging and provides the infrastructure to enable messaging between the different cloud based (Fast Speed) services.

Meeting in the middle

The following IBM product enables meeting in the middle integration capabilities:

- ▶ Gateway
 - **IBM DataPower** provides the means for configuring secure connectivity from the cloud to the enterprise and the distribution and management of the passports that control crossing the borders. The gateway also serves as the service gateway for the enterprise enabling the control around what services and APIs are exposed and who has the necessary privileges in their passport to use these services.

- ▶ DevOps
 - **IBM Service Engage** provides the means for you to build, run, and manage your apps and IT assets running on premises, in the cloud, and throughout both. It enables collaboration throughout development and operations, automates business and IT processes, provides the performance insights with analytics, and optimizes your inventory.

Resources for more information

For more information about the concepts highlighted in the paper, see the following resources:

- ▶ Blog post: Two Speed Integration by IBM
<http://ibm.co/1ArD04Y>
- ▶ IBM Academy of Technology
<http://www.ibm.com/ibm/academy/index.html>
- ▶ Video: Two Speed Integration by IBM with IBM Fellow Jerry Cuomo
<http://youtu.be/ONMM0JpChoQ>

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