Designing an omnichannel customer experience

Portfolio architecture blueprint

This architecture blueprint is based on three customer implementations that illustrate common elements for a multi-product architecture blueprint.

Product stack

- Red Hat® OpenShift®
- Red Hat Fuse
- Red Hat Process Automation
- Red Hat single sign-on

Introduction

An omnichannel approach provides a unified customer experience across platforms, creating a single view for customers to interact with their own information.

Red Hat provides a foundation for IT teams to develop and deliver omnichannel services through a combination of integration and process automation technologies. Agile integration defines how organizations are transforming and delivering on their digital promise to customers by integrating applications and services across on-premise infrastructure and cloud environments. Business automation, in the form of process integrations, are captured to enable access to complex process services.

A look at omnichannel design

Omnichannel integrates and orchestrates channels so a user can engage across all available channels.

When building an omnichannel approach, there are two possible designs:

1. Review a single service or bundle that is specifically tailored for a specific industry, such as financial services or retail.
2. Break down the elements required for a successful omnichannel architecture and then create a custom approach based on the specific needs of the existing infrastructure, organizational priorities, and data requirements.

Red Hat customers typically use the second, element-based approach as it allows them to define their own requirements and control the resulting architecture.

An omnichannel customer experience combines the integration and orchestration of required services and infrastructure with a flexible environment for delivering services across digital channels. Omnichannel architectures provide a seamless experience and consistent messaging across all customer channels.

There are two crucial aspects to an omnichannel design:

1. Integrating consumer applications with back-end systems.
2. Using real-time data streams from a variety of sources.

An effective omnichannel deployment creates better experiences for customers, so interactions – like customized recommendations or immediate retrieval of loyalty perks – feel personal and authentic.

An omnichannel experience requires more than having multiple possible channels for customer interactions. Organizations must unify these channels on the backend, especially with real-time data. That integration introduces some common challenges for customers:

- Data management
- Security and user access – through elements like traffic management and authentication layers
- Multiple protocol and language support through different integration technologies
- Distributed deployments, allowing integration within specific environments and crossing environments, rather than being centralized
- Developer training to deliver in this new digital integration architecture
- Operation training to manage and monitor this new digital integration landscape

An omnichannel architecture blueprint addresses these challenges by breaking down the architecture into common, clear elements.

A detailed look at an omnichannel architecture blueprint

The omnichannel architecture blueprint details a generalized architectural view of how customers have implemented Red Hat solutions to achieve omnichannel integration. It captures multiple successful implementations and reveals the basic outlines for designing and implementing an omnichannel integration architecture.

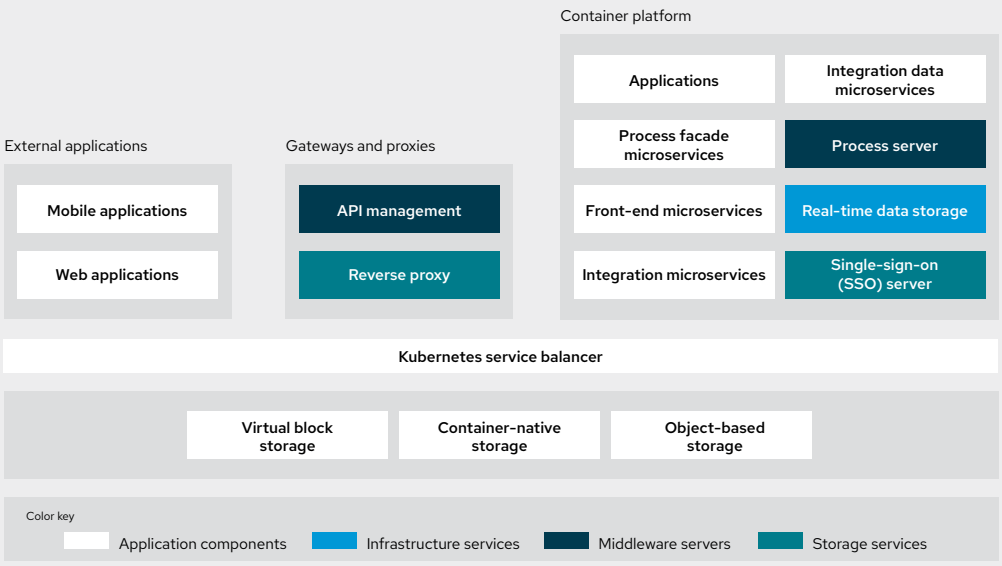

Figure 1. Omnichannel common architectural elements

There are some common elements across these customer implementations:

- External applications, including legacy, standalone, or aggregated microservices
- Application programming interface (API) gateway and proxies
- Integration microservices, between the front-end services, external systems, and internal storage services
- Data microservices, for real-time data storage and analysis and connections between datastores
- Business processes and logic
- Security and authentication – single sign-on (SSO) services
- A container platform and load balanced services
- Storage services, which can be traditional storage or cached realizations of logical storage definitions

While omnichannel architectures share these common elements, the actual implementations can be very different, depending on the infrastructure and application design.

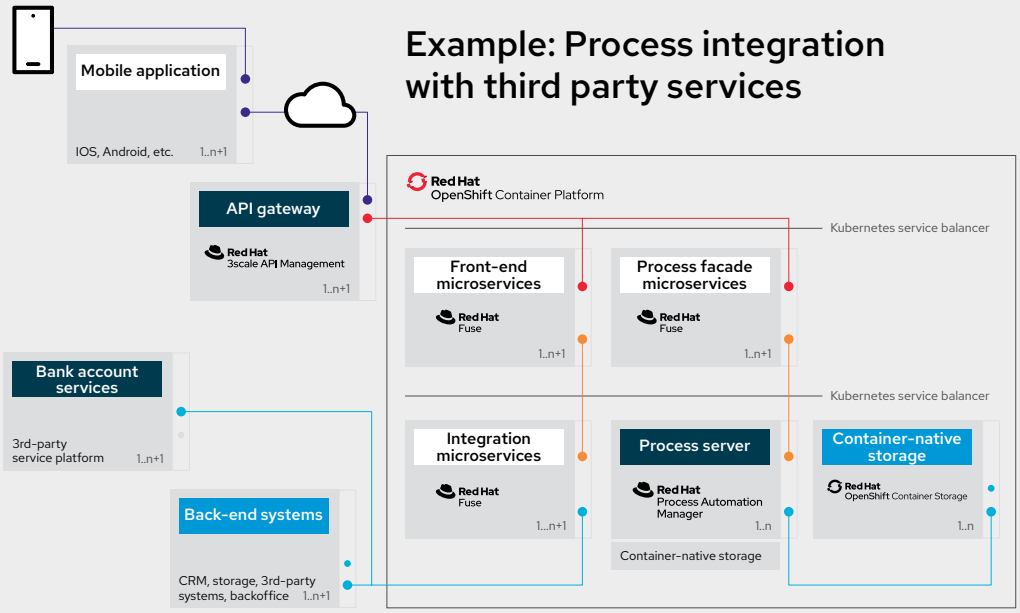

Figure 2. Example implementation focusing on process integration with external applications

Starting with the foundational elements, all Red Hat customer implementations have relied on a container platform and storage services.

- The container platform provides a consistent environment for developers and operations to manage services, applications, integration points, process integration, and security.
- Storage services are much more diverse in customer use cases, including everything from container-native storage to traditional block storage.

In the process automation breakdown, a mobile device connects to a group of services through an API gateway. The front-end microservices provide functionality, such as push notifications and synchronization, as well as complex client services.

These front-end microservices gather data and information from the various organizational back-end systems through the integration microservices, which are simplified for this diagram. One advantage to using the integration microservices is that it provides a layer between the front-end services, business logic, and any existing legacy applications. The integration microservices then interact with any required back-end systems, including external systems. This approach allows those legacy applications to be updated or replaced without affecting the overall omnichannel architecture.

The mobile application works with process facade microservices that expose any functionality of the process server. The process server uses the container-native storage in the container platform.

The benefits of a templated omnichannel architecture

Red Hat's agile integration approach uses containers as a deployment platform for integration technologies deployed as microservices. This architecture provides the flexibility for back-end infrastructures and applications to change and integrations to be updated accordingly—without cascading failures. This container-based, agile approach to integration is reflected directly in our customers' success with omnichannel deployments. Our customers have experienced:[1]

- **Reduced development times and reduced times to deployment** for new applications, with one customer reporting that they are able to deploy applications almost twice as fast (98%) as before.
- **Reduced development costs**, with a customer reporting a 40% reduction in costs because of increased productivity.
- **Reduced downtime**, with customers reporting almost no unscheduled downtime.
- **Improved compliance with security regulations**, such as General Data Protection Regulation (GDPR) with embedded security and easier integration changes.
- **Improved customer experiences** by providing faster services and being able to deliver new, competitive services more quickly.

1 *Internal Red Hat data taken from implementation documentation from Red Hat Consulting engagements.*

Conclusion

Organizations are distinguishing themselves through customer experiences and services as much as product quality and expertise. Omnichannel services require more than just offering different ways of customer interactions—it requires unifying all of the different data sources and process actions on the back end to create a consistent experience on the front end. Red Hat's agile integration architecture provides a blueprint customers can use to efficiently create omnichannel experiences.

For a more detailed look at different omnichannel architectures, see the Blueprint for omnichannel architecture webinar, available on-demand.

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