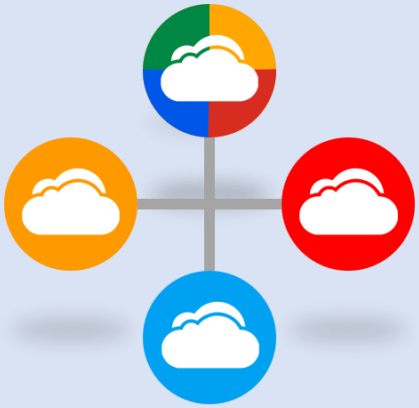


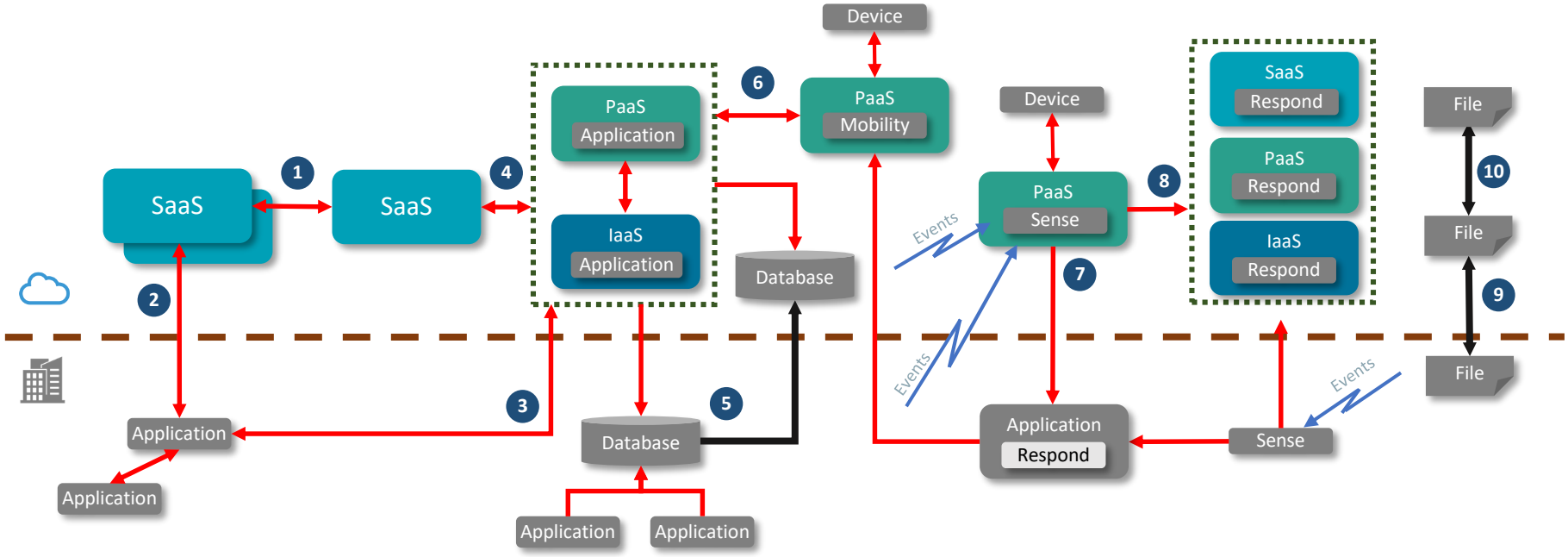
Hybrid and Multi Cloud Posters

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Author: Stephen G. Bennett
Release : 20181210

More details on the individual posters can be found at
www.hybridandmulticloud.com

Hybrid and Multi Cloud Integration Use Cases

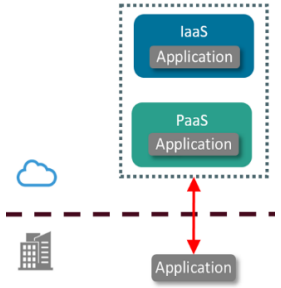
A conceptual view of some common Hybrid and Multi Cloud Integration use cases. The use cases are in no order and by no means the only use-cases. The Hybrid / Multi Cloud Integration use cases illustrated here, coupled with the various platform deployment options (cloud, on-premises, hybrid, federated) can be utilized to narrow down the number of hybrid and multi cloud integration patterns that might be applicable to a particular integration requirement.



1. SaaS to SaaS (single, multi-cloud)
2. SaaS to On-Premises App
3. App in the Cloud to On-Premises App
4. App in the Cloud to SaaS/App (single, multi-cloud)
5. App in the Cloud, Data Origination On-Premises
6. Mobility
7. Cloud Sense
8. Cloud Respond
9. Transfer On-Premise File
10. Transfer Cloud File

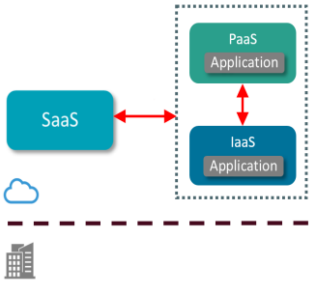
Hybrid and Multi Cloud Integration Use Cases

Application in the Cloud to On-Premises Application



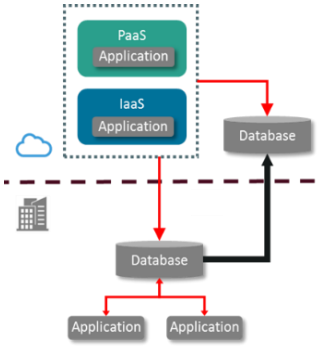
The integration of an application in the cloud either on an IaaS or PaaS platform that integrates with an on-premises application. When applicable, the caching of the integration response in the cloud is applied to make subsequent on-premise requests return results faster. There may be multiple apps in the cloud and multiple apps on premises.

Application in the Cloud to SaaS/Application (single, multi-cloud



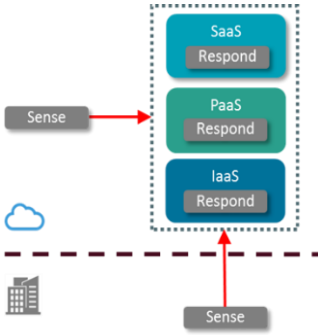
The integration of a source SaaS application to a target cloud-hosted application (PaaS or IaaS). The source SaaS application and target cloud-hosted applications may be provided by different clouds. When applicable, the caching of the integration response is applied to make subsequent requests return results faster.

Application in the Cloud, Data Origination On-Premises



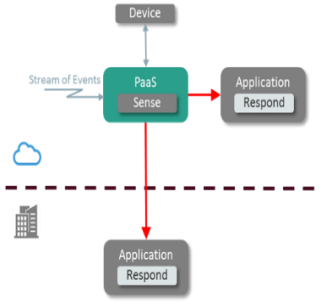
An Application hosted in the Cloud needs access to data originating from an on-premised database. Data can be replicated from an on-premised database to a Cloud-hosted database or establishing a connection to an on-premises database.

Cloud Respond



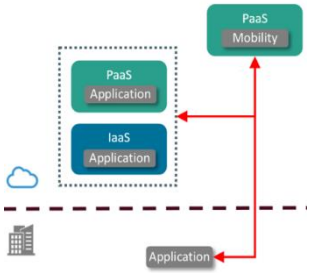
The utilization of Cloud resources to respond to a cloud-based or on-premises sensed condition. The origination of these sensed conditions maybe from an IoT and/or Stream Processing Platforms.

Cloud Sense



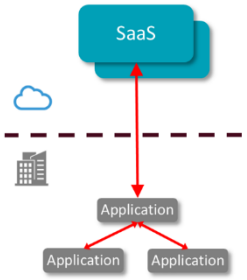
The utilization of Cloud resources for the acquisition, filtering, aggregation, correlation, and enhancement of events, with the determination on when a response is required. The origination of these events maybe from devices, data feeds (e.g. social), or applications. If applicable the management and connection of devices is addressed.

Mobility



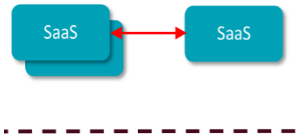
SaaS and/or applications whether hosted on premises or in the cloud that require a mobile user interface that exposes functionality that is available in the application. There may be a 1 to 1 relationship between the mobile user interface and the application or a mobile user interface may expose/integrate between multiple applications

SaaS to On-Premises Application



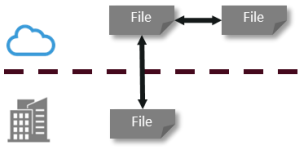
The integration of a SaaS application and on-premises application. When applicable, the caching of the integration response in the cloud is applied to make subsequent on-premise requests return results faster. There may be multiple SaaS applications and multiple on-premises applications, but the key consideration is the integration between an on-premises application and a Cloud-based SaaS application.

SaaS to SaaS (Single, Multi-Cloud)



The integration of a source SaaS application to a target SaaS application. The source and target SaaS applications may be provided by different clouds. When applicable, the caching of the integration response is applied to make subsequent requests return results faster.

Transfer On-Premises / Cloud File

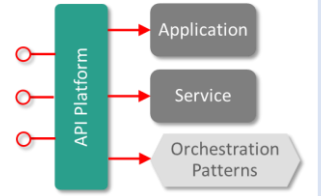


The transference of a source file to a target file. The source or target files may be hosted in multiple public clouds and/or an on-premise. When applicable, the files may be distributed to many different targets (e.g. multi-cloud) The file may be compressed to addressed network concerns

Hybrid and Multi Cloud Integration Patterns

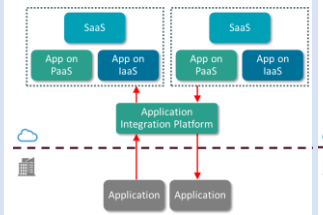
APPLICATION INTEGRATION

API Enablement: Interface Formalization (INAE01)



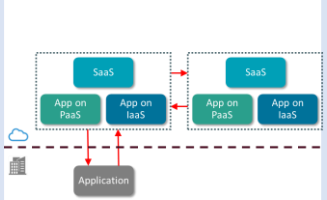
How do I expose a formalized API for existing applications, services, and orchestrations?

App Integration: Cloud Integration (INAI01)



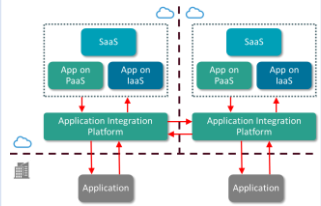
How do I integrate a Cloud-based application with an on-premises or Cloud-based application with minimal on-premises impacts?

App Integration: Direct Integration (INAI02)



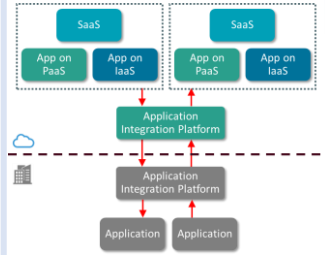
How do I integrate a Cloud-based application with another Cloud-based or on-premises application without using any infrastructure?

App Integration: Federated Integration (INAI03)



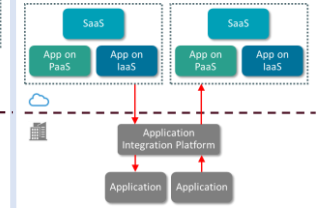
How do I integrate a Cloud-based application with another Cloud-based or on-premises application which makes use of an Application Integration Platform in two Clouds?

App Integration: Hybrid Integration (INAI04)



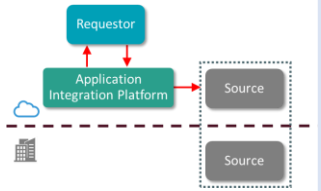
How do I integrate Cloud-based and on-premises applications with maximum flexibility?

App Integration: On-Premises Integration (INAI05)



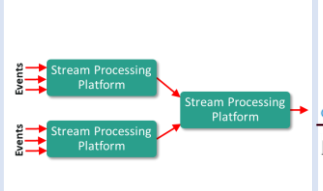
How do I integrate Cloud-based and on-premises applications with minimal Cloud footprint?

Caching: Cloud Query Result Caching (INCA01)



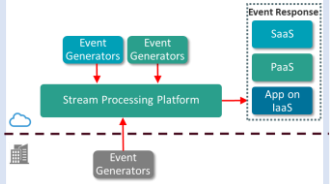
How do I cache a result from an on-premises source to make a subsequent requests return results faster?

Event: Cloud EPN (INEV01)



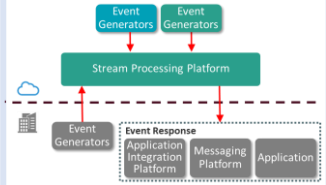
How do I use Cloud resources to process high volume incoming events?

Event: Cloud Sense Cloud Respond (INEV02)



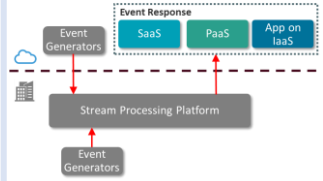
How do I use Cloud resources to process incoming events, sense a need to respond, and then respond?

Event: Cloud Sense On-Premises Respond (INEV03)



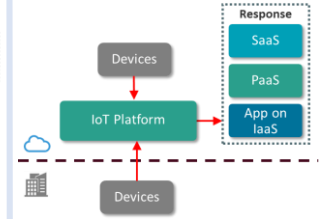
How do I use Cloud resources to process incoming events, sense a need to respond, and respond via on-premises systems?

Event: On-Premises Sense Cloud Respond (INEV04)



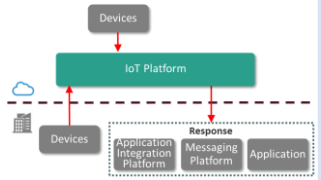
How do I use Cloud resources to respond to when on-premises event processing determines a need to respond?

IoT: Cloud Sense Cloud Respond (INIT01)



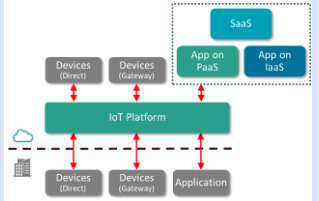
How do I use Cloud resources to process data and alerts coming from devices, sense a need to respond, and then respond?

IoT: Cloud Sense On-Premises Respond (INIT02)



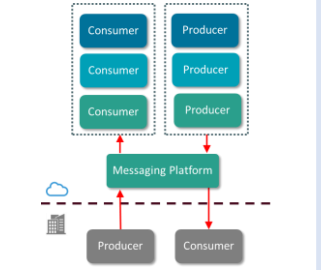
How do I use Cloud resources to process incoming data & alerts from devices, sense a need to respond, & respond via on-premises systems?

IoT: Device Connectivity (INIT03)



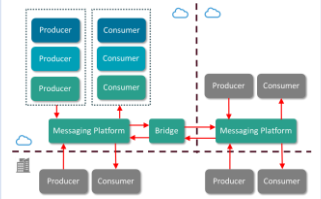
How do I connect to devices so that enterprise applications can communicate with the devices?

Messaging: Cloud Messaging (INME01)



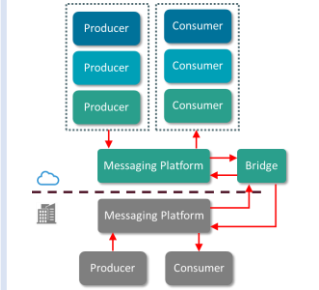
How do I send messages between message producers and messaged consumers, minimal on premise impacts?

Messaging: Federated Messaging (INME02)



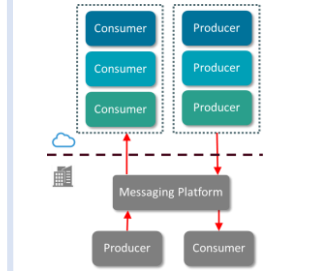
How do I integrate messaging in one Cloud with messaging in another Cloud?

Messaging: Hybrid Messaging (INME03)



How do I integrate on-premises messaging with Cloud-based messaging?

Messaging: On-Premises Messaging (INME04)

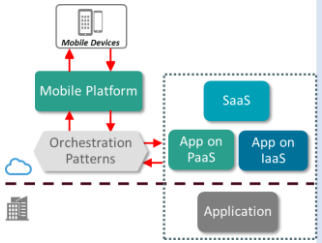


How do I send messages between on-premises producers & Cloud-based based consumers, or vice versa, using an on-premises messaging platform?

Hybrid and Multi Cloud Integration Patterns

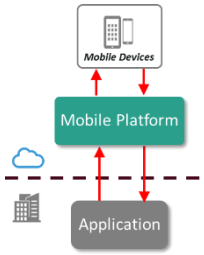
APPLICATION INTEGRATION

Mobile: Cloud Mobile for Composite App (INMO01)



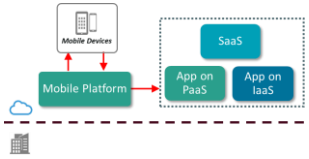
How do I provide a mobile user interface for a composite application incorporating on-premises applications and SaaS or Cloud-hosted applications?

Mobile: Cloud Mobile for On-Premises App (INMO02)



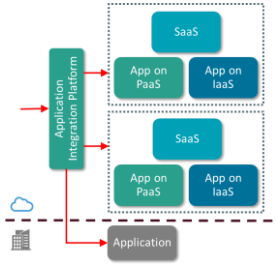
How do I add a mobile user interface to an on-premises application?

Mobile: Cloud Mobile for SaaS/App (INMO03)



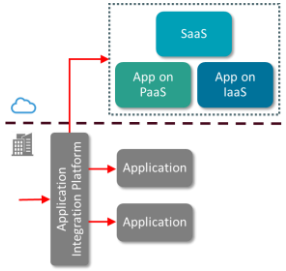
How do I add a mobile user interface to a SaaS or Cloud-hosted application?

Supporting: Cloud Orchestration (INSU01)



How do I incorporate Cloud-based applications and on-premises applications in an orchestration with minimal on-premises impacts?

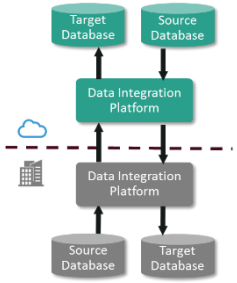
Supporting: On-Premises Orchestration (INSU02)



How do I incorporate Cloud-based applications and on-premises applications in an orchestration with minimal Cloud footprint?

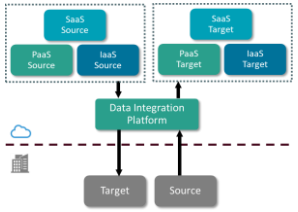
DATA INTEGRATION

Data Replication: Hybrid Replication (DIDR01)



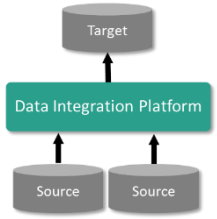
How do I replicate data from a database to a database in the Cloud or on-premise with maximum flexibility?

File Transfer: Cloud File Transfer (DIFT01)



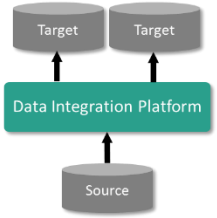
How do I transfer a data file from source to a target where source and target could be Cloud-based or on premises with minimal on premises impact?

File Transfer: Consolidate (DIFT02)



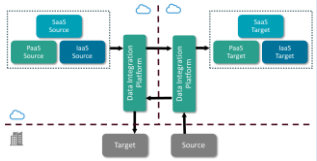
How do I consolidate data from multiple source files to a single target file where source and target may be Cloud based or on premises?

File Transfer: Fan Out (DIFT03)



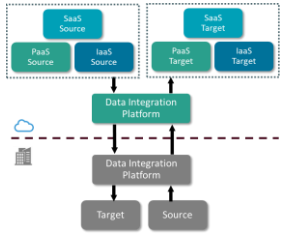
How do I transfer a data file from a single source to multiple targets where source and target may be Cloud based or on premises?

File Transfer: Federated File Transfer (DIFT04)



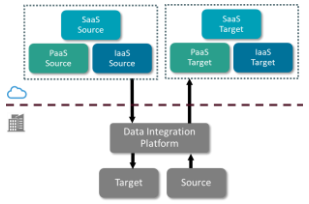
How do I transfer a data file from a cloud-based source to a target in another Cloud where both Clouds use a Data Integration Platform?

File Transfer: Hybrid File Transfer (DIFT05)



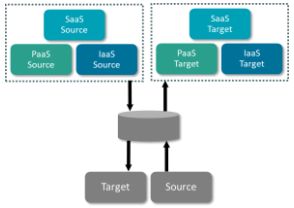
How do I transfer a data file from source to a target where source and target could be Cloud-based or on premises with maximum flexibility?

File Transfer: On-Premises File Transfer (DIFT06)



How do I transfer a data file from source to a target where source and target could be Cloud-based or on premises with minimal Cloud footprint?

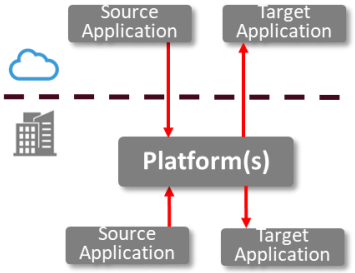
File Transfer: Shared Storage (DIFT07)



How do I transfer a data file from an on-premises source to a cloud-based target (or vise versa) with minimal infrastructure?

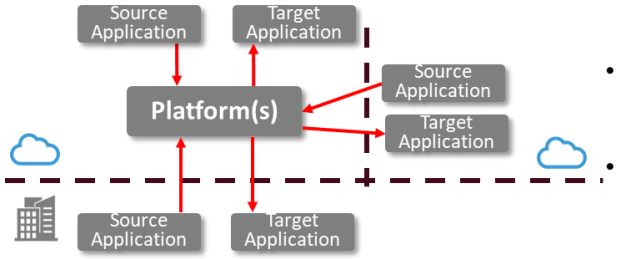
Hybrid and Multi Cloud Platform Deployment

On-Premises



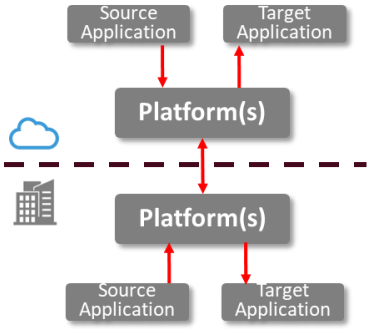
- This is a common first platform deployment model that businesses adopt for initial Hybrid and Multi Cloud Integrations.
- Businesses wish to leverage their existing investment and skills of their on-premises integration platforms.
- Many on-premises integration platforms lack the cloud adaptors to integrate natively with SaaS applications.
- Can be sub-optimal for cloud to cloud integrations.

Cloud



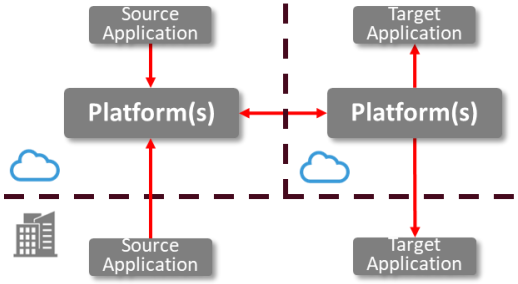
- This approach tends to utilize a PaaS Integration as a Service rather than deploying an integration platform in IaaS.
- Appeals to businesses due to time to market advantages, ease of use and maintenance.
- Initially adopted by small/mid-size companies, and large enterprises with departmental integration requirements.
- Longer term option for larger enterprises, once majority of applications are in the cloud.

Hybrid



- This deployment model utilized both an on-premises integration platform as well as a PaaS integration as a service platform.
- Most common approach for hybrid and multi cloud environments.
- Provides flexibility to adopt a center of gravity approach to integration.
- Increase complexity compared to having only one integration platform.
- Potential performance impact due to integration going through two integration platforms.

Federated



- Due to M&A activity this deployment model is a common occurrence in utilizing multiple PaaS integration as a service platforms.
- Common interim approach until one integration platform is retired.
- Provides flexibility to adopt a center of gravity approach for cloud integrations.
- Increases complexity compared to having only one platform
- Potential performance impact due to integration going through two platforms.

PATTERN NOTATION

Cloud Service/Products

- SaaS — Public /Private SaaS
- PaaS — Public /Private PaaS
- IaaS — Public /Private IaaS
- Unspecified — Unspecified

Persistence

- DB, NoSQL,... — Public /Private Data Store
- Storage — Public /Private Object/File Store
- Unspecified — Unspecified Product - Data Store

Grouping, Calls & Flows

ANY Grouping

<text> AND Grouping

API Call

Data Flow

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