



Cloud Customer Architecture for Hybrid Integration

<http://www.cloud-council.org/deliverables/cloud-customer-architecture-for-hybrid-integration.htm>

The Cloud Standards Customer Council

THE Customer's Voice for Cloud Standards!



- Provide customer-led guidance to multiple cloud standards-defining bodies
- Establishing criteria for open standards based cloud computing

2017 Projects

- **Hybrid Integration Ref. Architecture**
- API Management Ref. Architecture
- Security for Cloud Services Ref. Architecture
- Data Residency discussion paper
- Blockchain Ref. Architecture
- Multi-cloud Management whitepaper
- Cognitive Computing Ref. Architecture
- And more!

2015 Deliverables

- Web App Hosting Ref. Architecture
- Mobile Ref. Architecture
- Big Data & Analytics Ref. Architecture
- Security for Cloud Computing, V2
- Practical Guide to Cloud SLAs, V2
- Practical Guide to PaaS

2013/2014 Deliverables

- Convergence of Social, Mobile, Cloud
- Analysis of Public Cloud SLAs
- Cloud Security Standards
- Migrating Apps to Public Cloud Services
- Social Business in the Cloud
- Deploying Big Data in the Cloud
- Practical Guide to Cloud Computing, V2
- Migrating Apps: Performance Rqmnts
- Cloud Interoperability/Portability

2016 Deliverables

- Prac Guide to Hybrid Cloud Computing
- Public Cloud Service Agreements, V2
- Cloud Security Standards, V2
- IoT Ref. Architecture
- e-Commerce Ref. Architecture
- Impact of Cloud Computing on Healthcare, V2
- Enterprise Social Collaboration Ref. Architecture

650+ Organizations participating



> <http://cloud-council.org>

This talk introduces the Cloud Customer Architecture for Hybrid Integration.

- **What are Cloud Solution Architectures?**
- **Hybrid Integration Cloud Architecture**
- **CSCC's Cloud Reference Architecture series**
 - **Cloud Customer Architecture for e-Commerce** <http://bit.ly/2camhlz>
 - **Cloud Customer Architecture for IoT** <http://bit.ly/2cLcomc>
 - **Cloud Customer Architecture for Big Data** <http://bit.ly/2crffR2>
 - **Cloud Customer Architecture for Mobile** <http://bit.ly/2cIYtdl>
 - **Cloud Customer Architecture for Web Application Hosting** <http://bit.ly/2cgTVK2>
 - **Cloud Customer Architecture for Enterprise Social Collaboration**
<http://bit.ly/2jDiMPD>

Cloud Customer Reference Architectures

- **Cloud Customer Reference Architectures are...**
 - straightforward description of elements needed to implement particular application solutions using cloud infrastructure, cloud platforms, cloud software, and cloud services
 - deployment neutral (public, private, hybrid) & implementable via IaaS, PaaS, SaaS
 - general purpose reusable architectures as well as industry specific architectures
 - vendor neutral & open

- **Important because they...**
 - enable cloud customers to understand unique features & advantages of using cloud computing
 - bridge gap between understanding cloud customer needs and cloud provider offerings
 - provide practical guidance on how common business applications can be realized from a cloud customer role perspective
 - are stable anchors in a rapidly innovating cloud landscape
 - save time, effort & money: *be more productive*

- **Useful when...**
 - those planning to build cloud based applications
 - talking with cloud providers about their offerings
 - understanding of the common elements and relationships in relevant solutions

- **Target audience:**
 - those planning on building/purchasing cloud based applications
 - developers, architects, managers

- **Consistent with ISO/IEC 17789 International Standard Cloud Computing Reference Architecture**

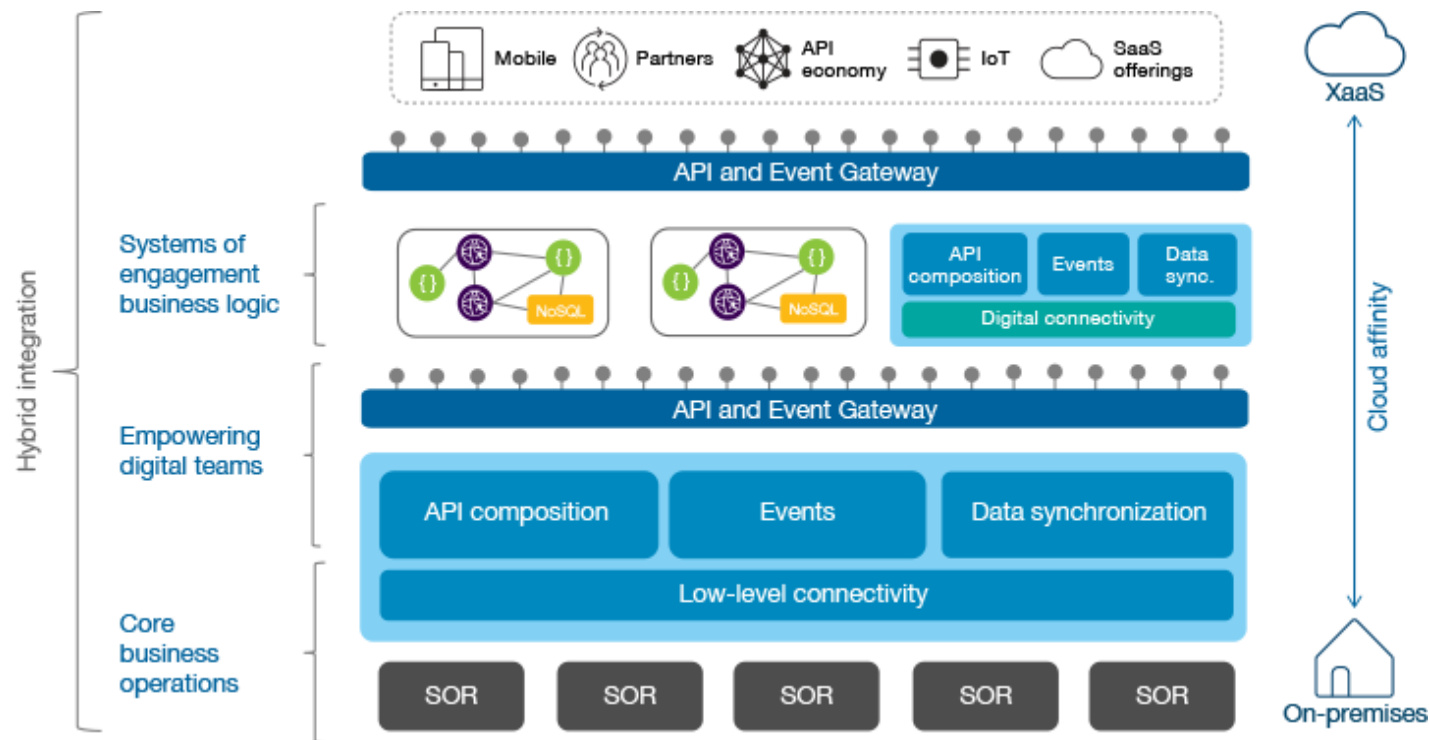
Cloud Customer Reference Architecture for Hybrid Integration

Executive Summary

IT environments are now fundamentally hybrid in nature - devices, systems and people are spread across the globe, and at the same time virtualized. Achieving integration across this ever changing environment, providing it at the pace of modern digital initiatives, and still being able to manage the landscape is a significant challenge.

The hybrid integration reference architecture explores common patterns seen in enterprises tackling these issues.

Hybrid integration can be looked at from many perspectives including application, data and infrastructure. This document positions hybrid integration from an **application perspective**, and presents the reference architecture as a seamless integration from cloud to on-premise for events, APIs and data.

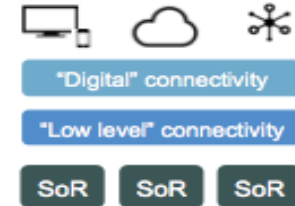


Cloud Customer Reference Architecture for Hybrid Integration

Executive Summary

The hybrid integration reference architecture addresses the following considerations

- **Connectivity:** Integration is about connecting systems and devices with other systems and devices. Integration may involve low level connectivity to systems of record (SoR) and it may require the need to leverage modern interfaces on cloud native systems. In short, any system, anywhere, must be enabled as a first class citizen in the integration landscape.



- **Deployment:** Since modern systems are deployed across a broad landscape of systems, the accompanying integration components must have equally flexible deployment options. The components should be as easy to run on premises in enterprises as it is to deploy on public cloud platforms. Equally, components should be well equipped to run directly on bare metal, in virtual machines, or in containers. They should be able to integrate within and across network and security boundaries.



- **Roles:** IT in general has become bi-modal, and sometimes multi-modal with independent teams working at different velocities. Integration needs to encompass people from across the entire business. Hybrid integration expands beyond the realm of just integration specialists. Integration standards and tooling have evolved to the point that straightforward integrations can be performed directly by business users and shadow IT departments that are aligned with the line of business. Complex integrations are now often collaborative, where the work of one team in surfacing events or APIs becomes the building blocks for another team.

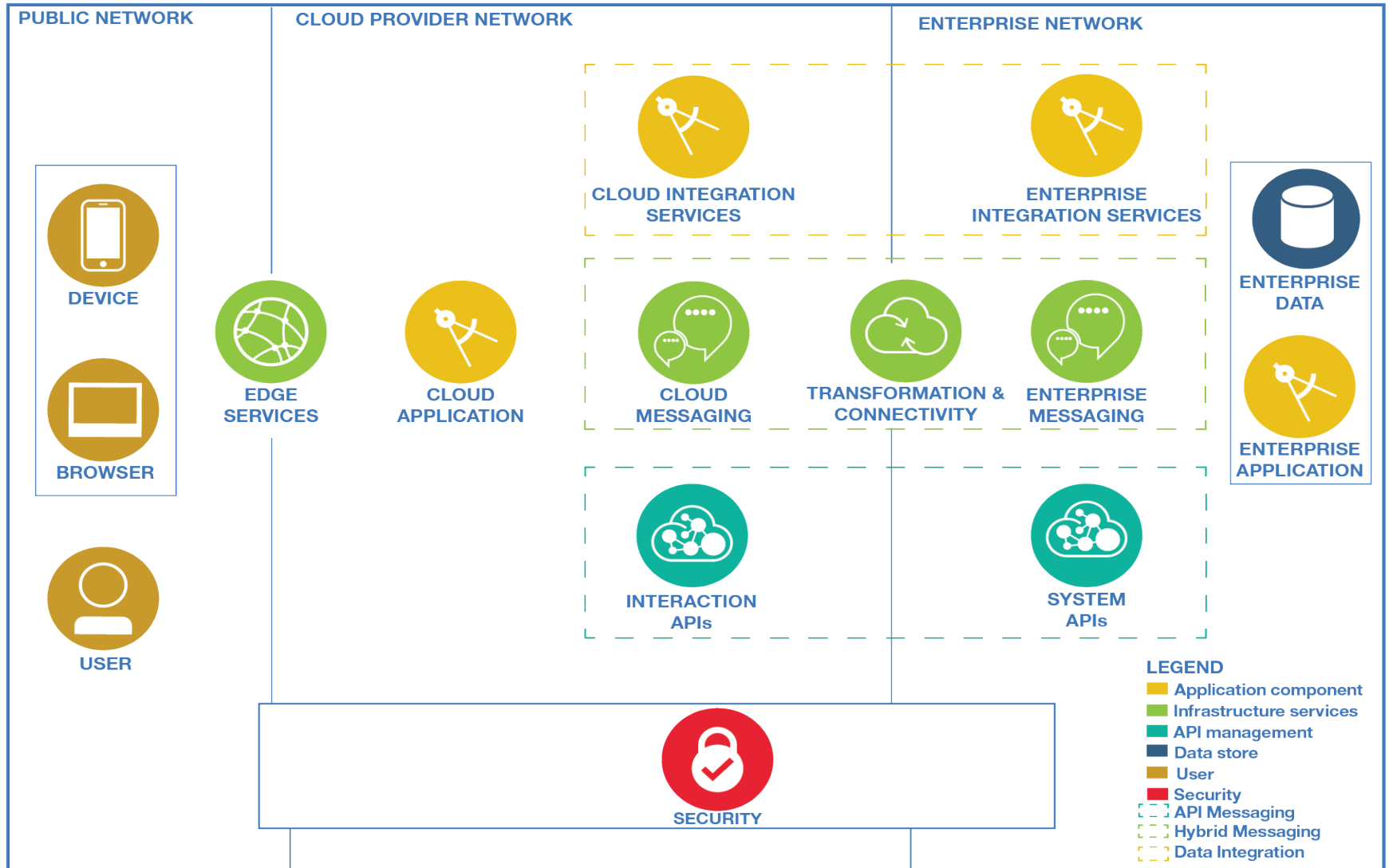


- **Styles:** In the past, discrete patterns of integration often needed to be blended together to deliver complex solutions. Now, enterprise integration can be combined with APIs, events and data-- tooling and runtimes need to make this as seamless as possible.



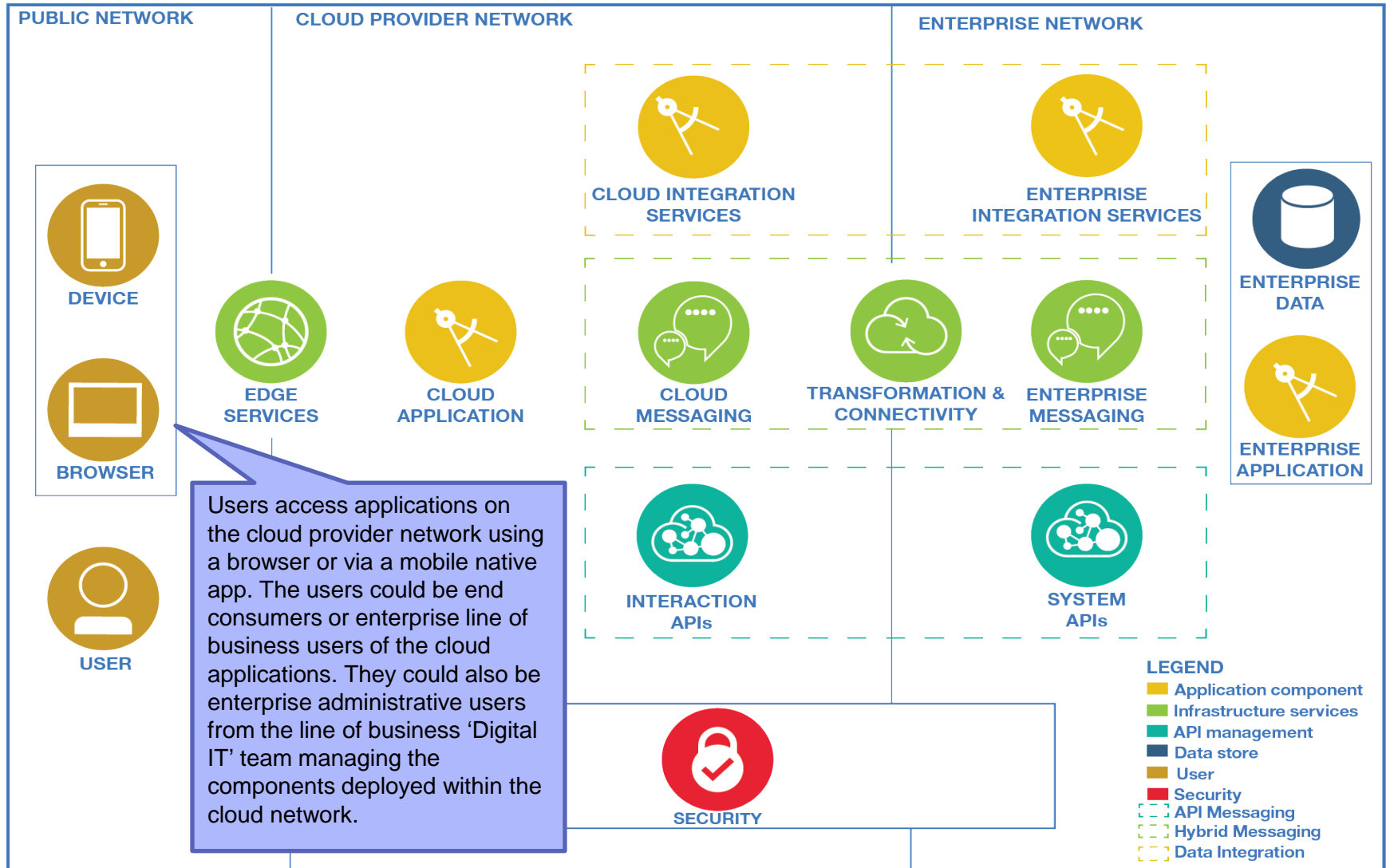
Cloud Customer Reference Architecture for Hybrid Integration

Architecture Overview



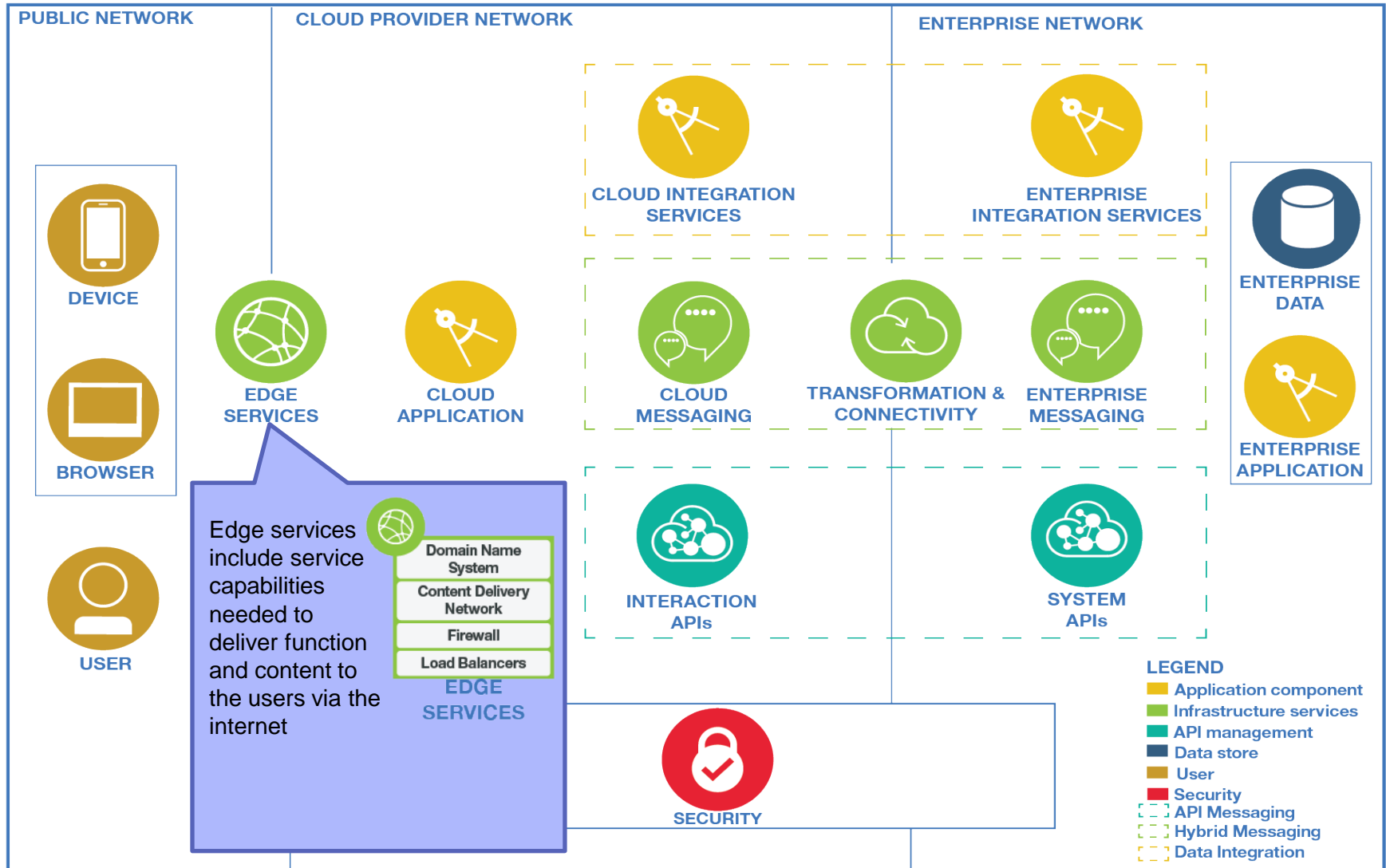
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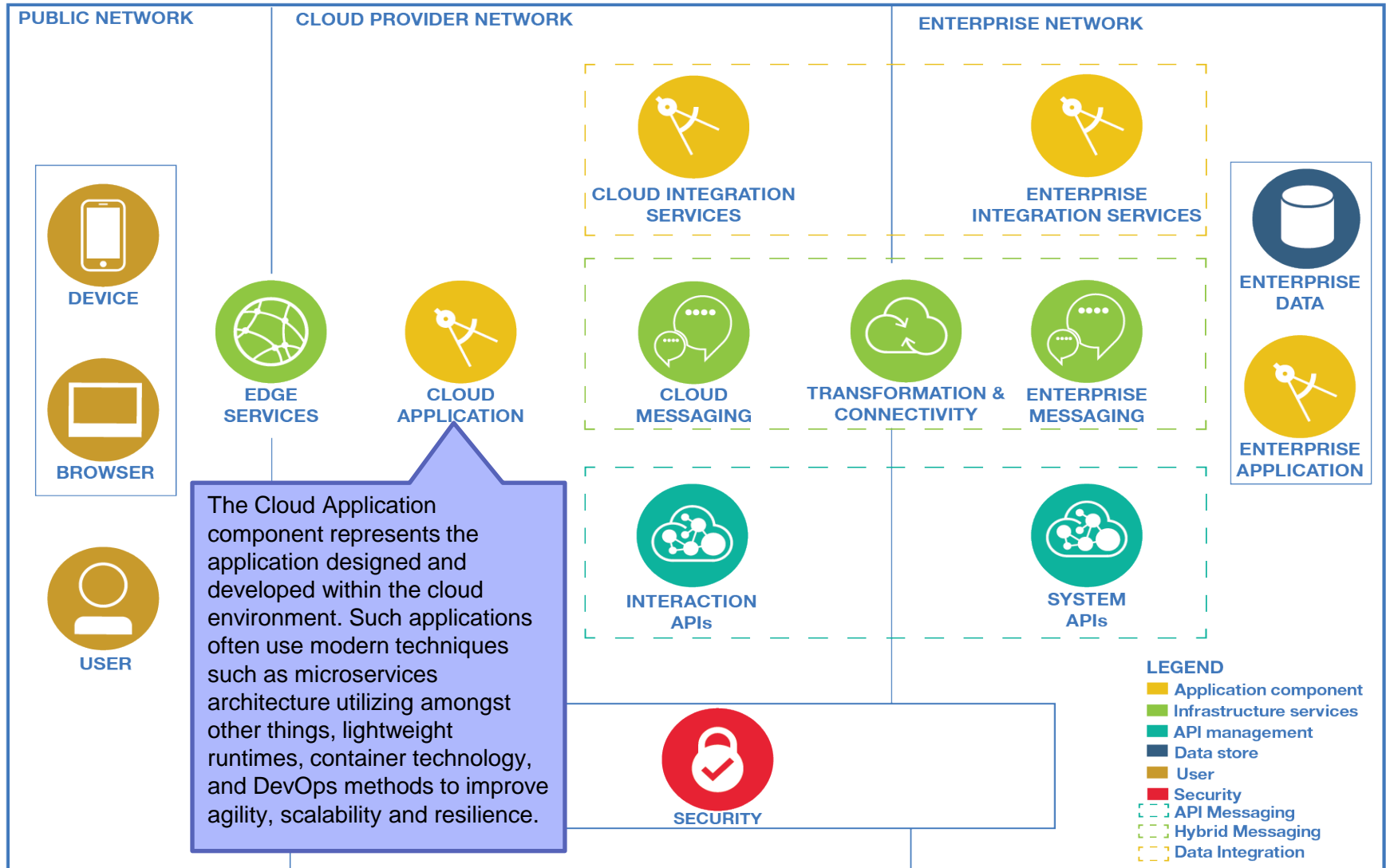
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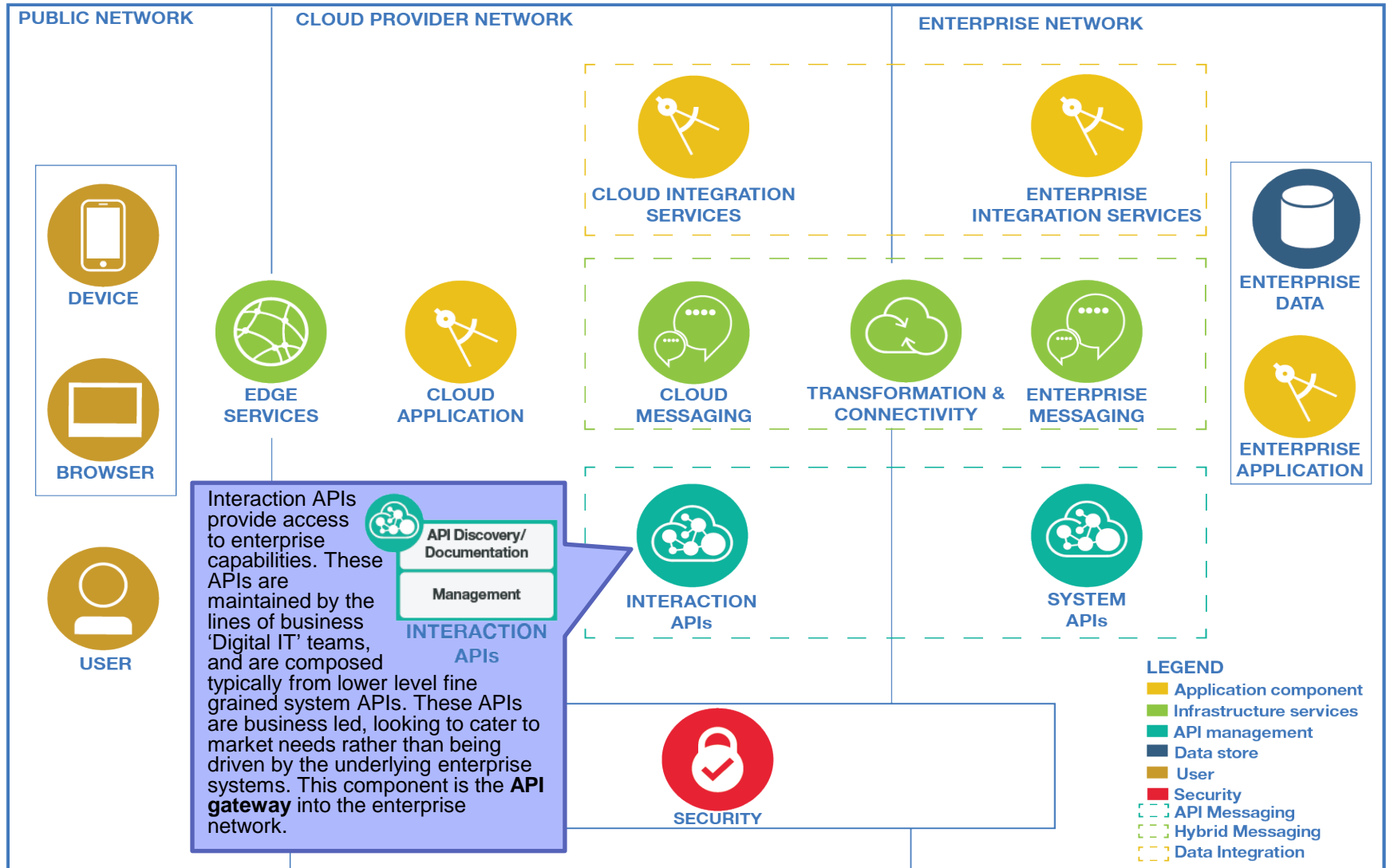
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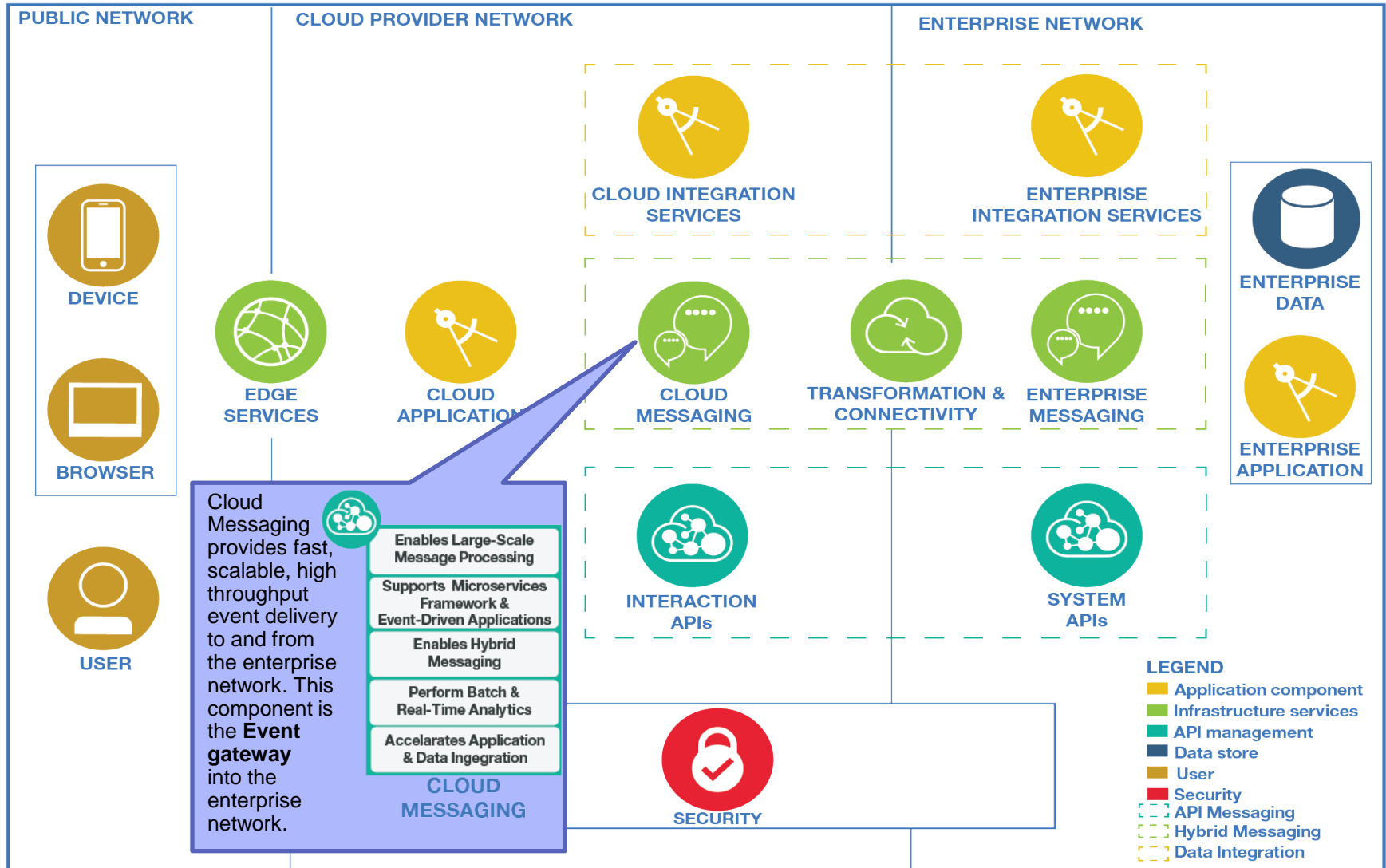
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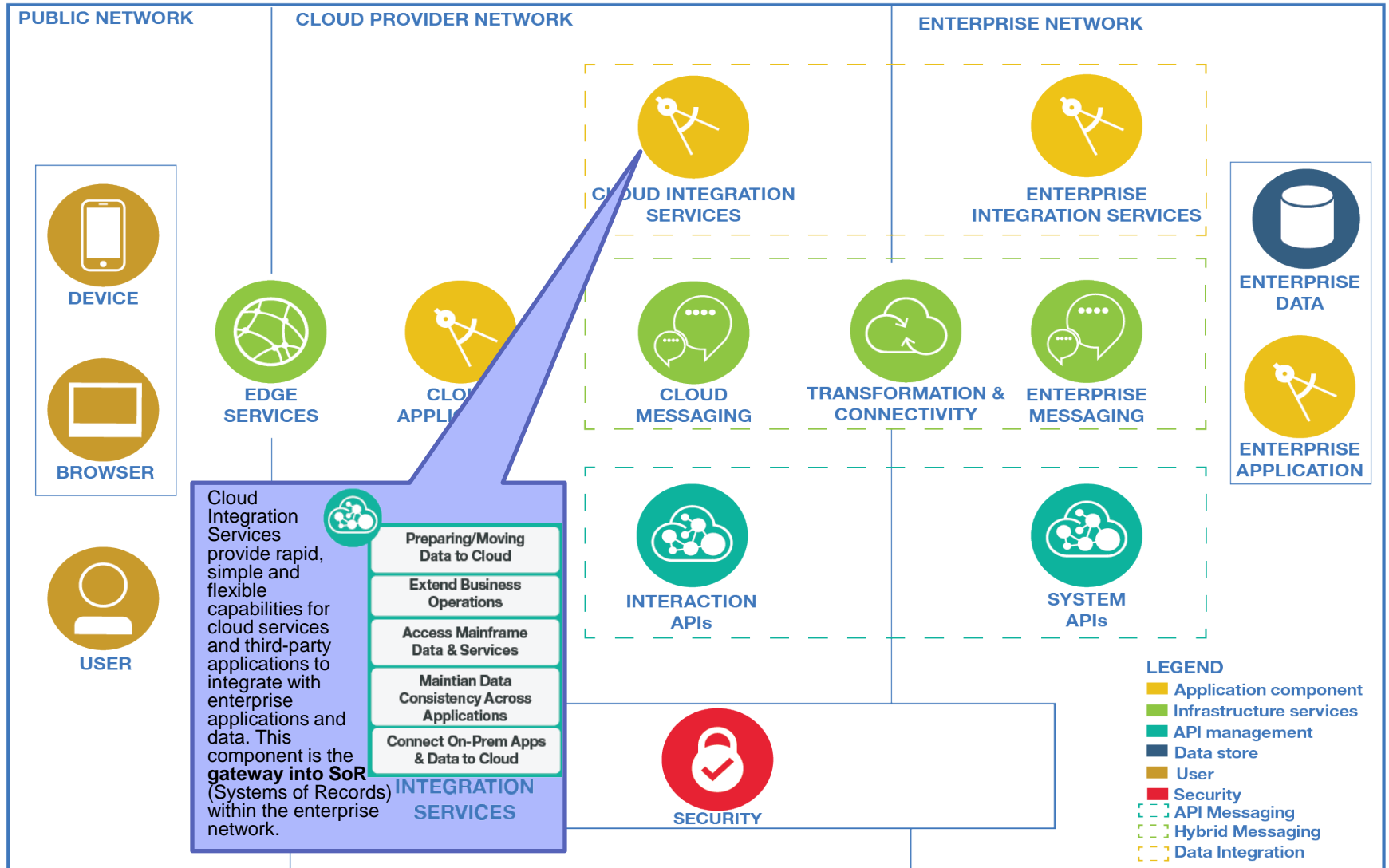
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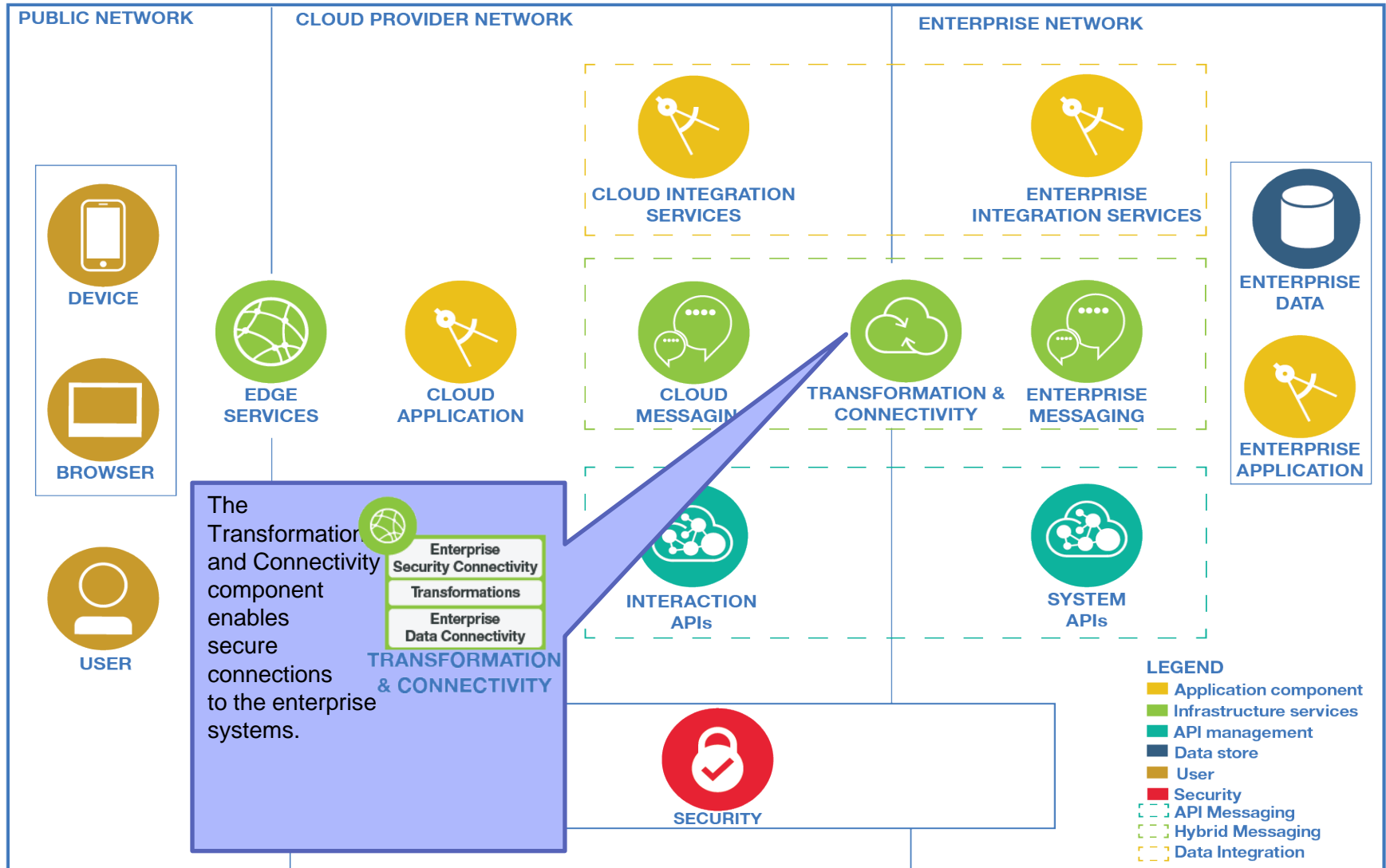
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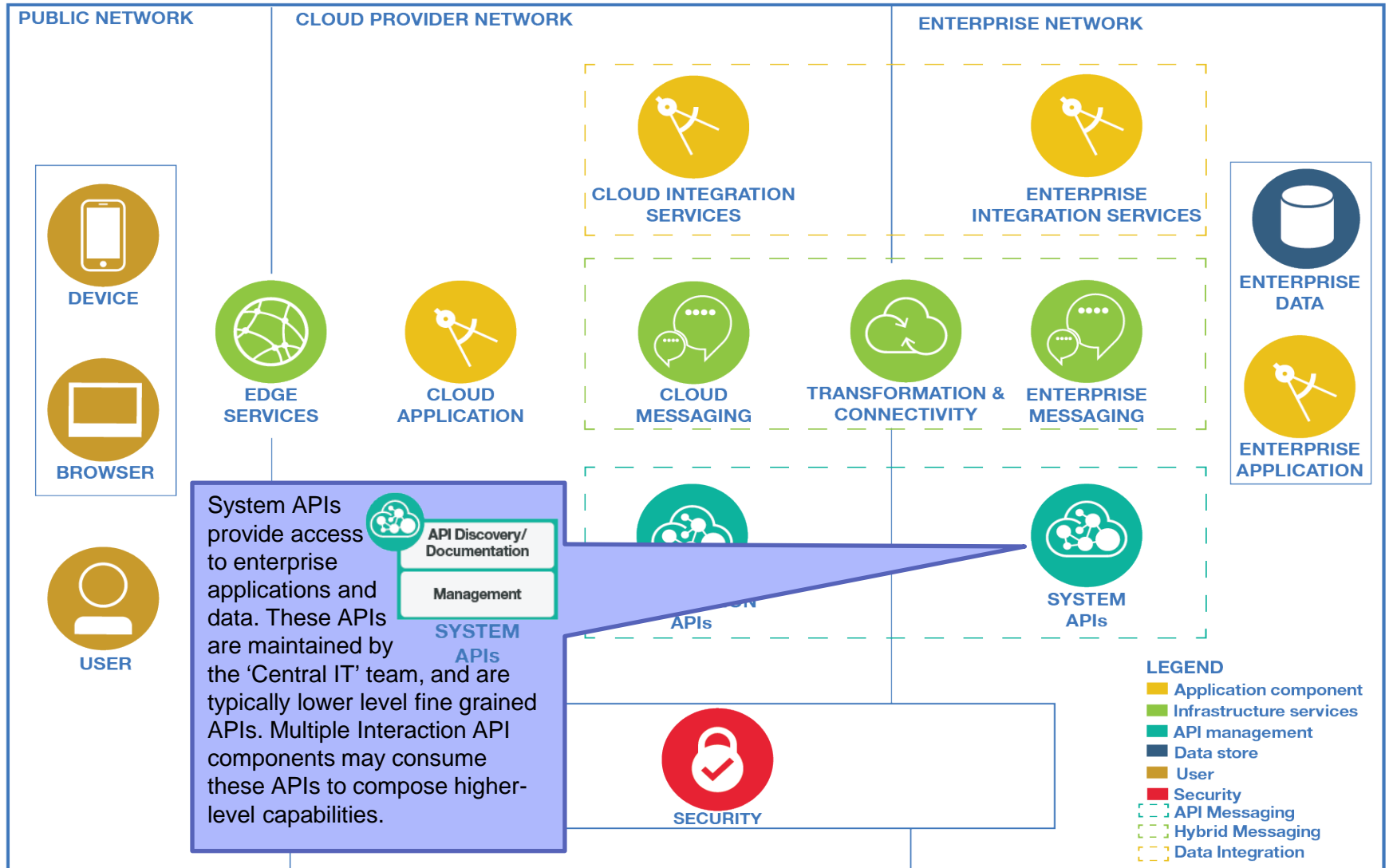
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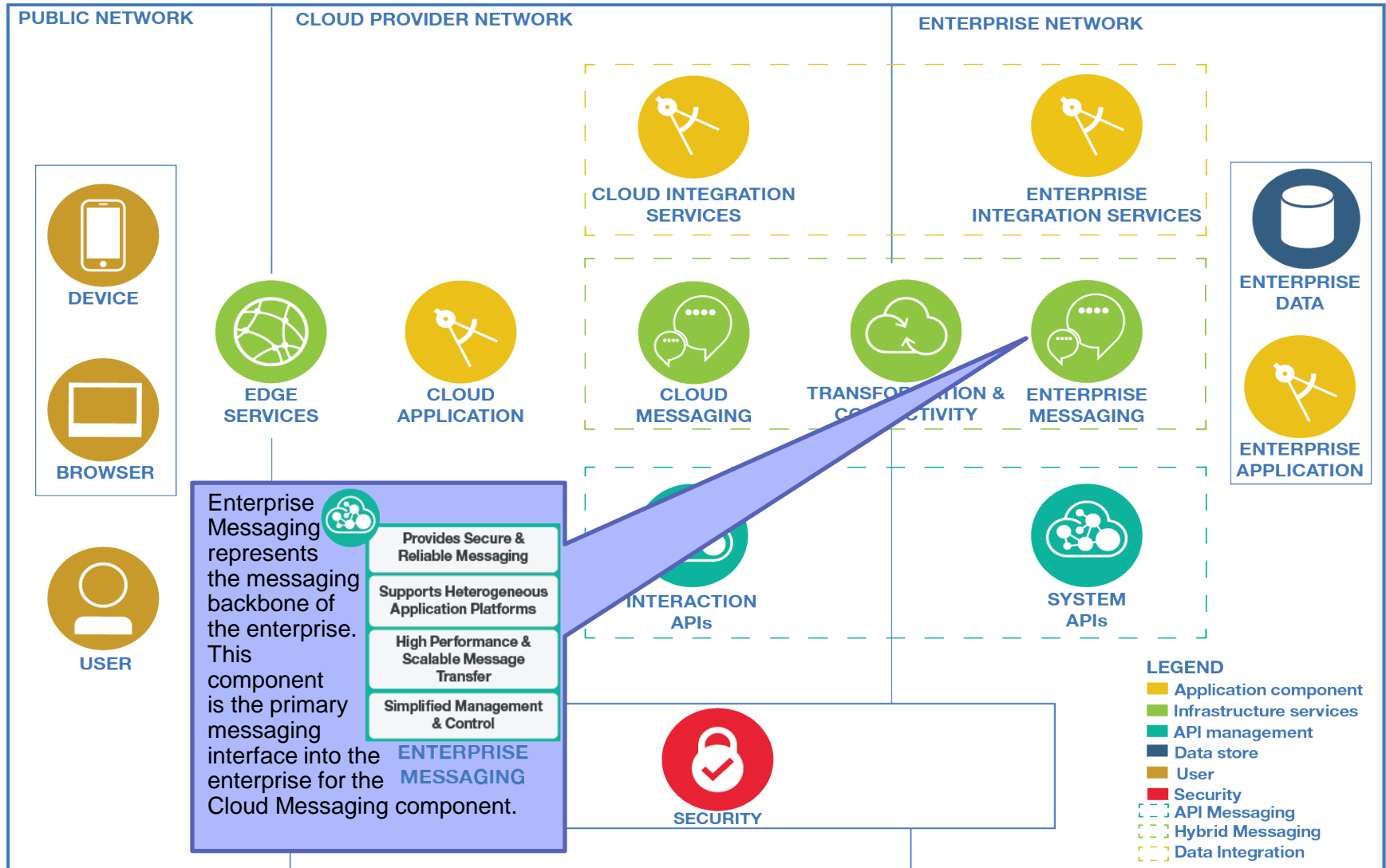
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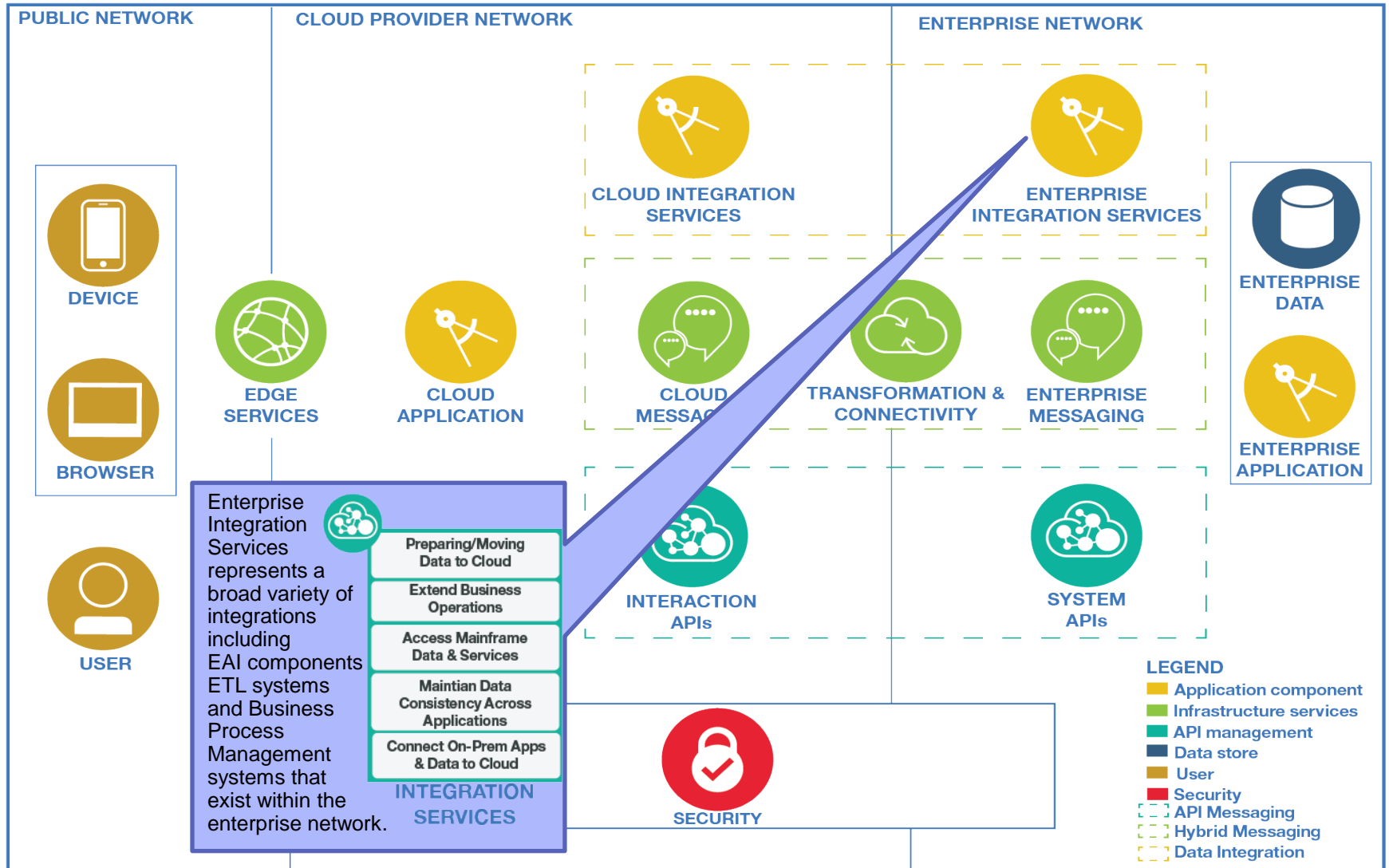
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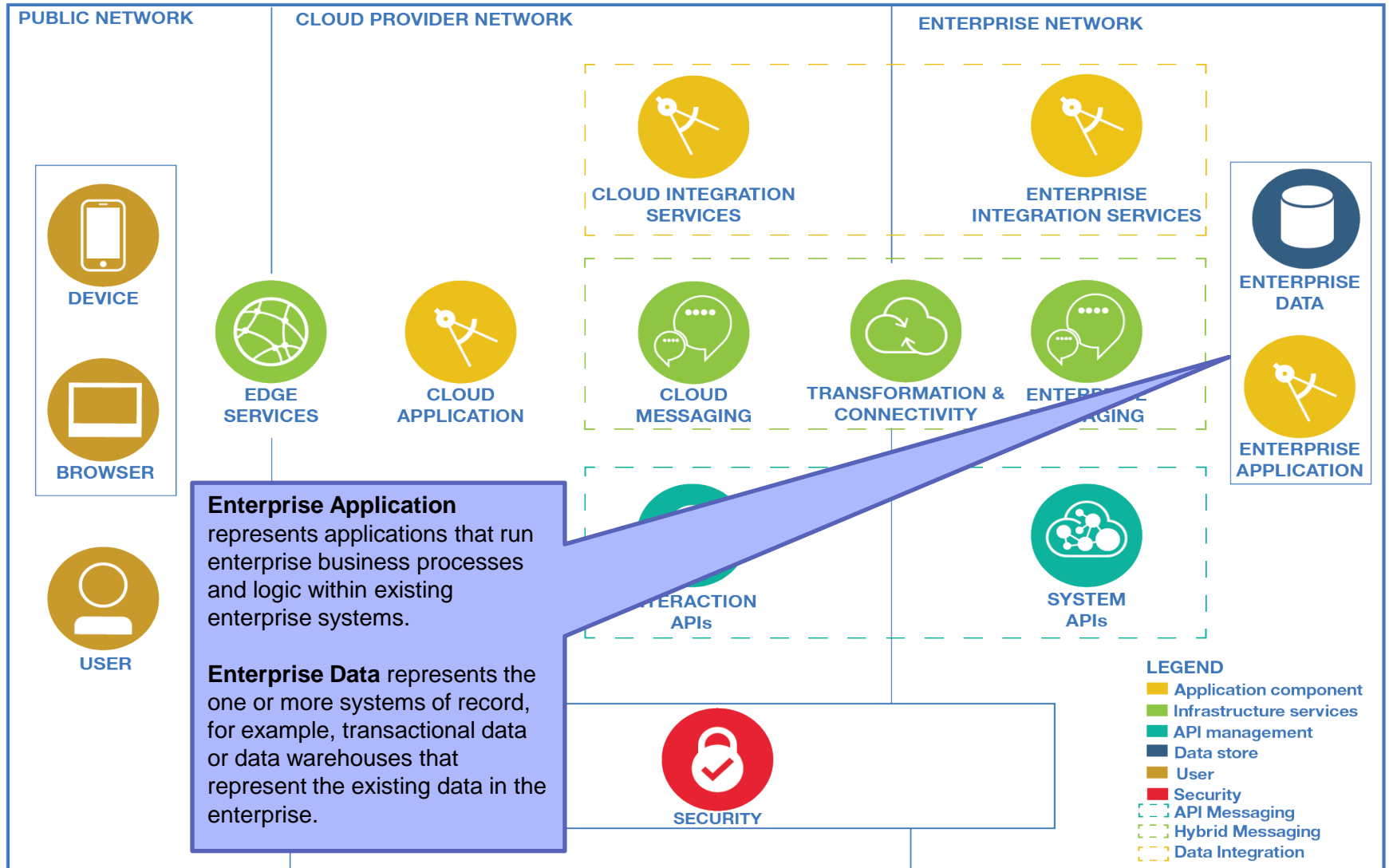
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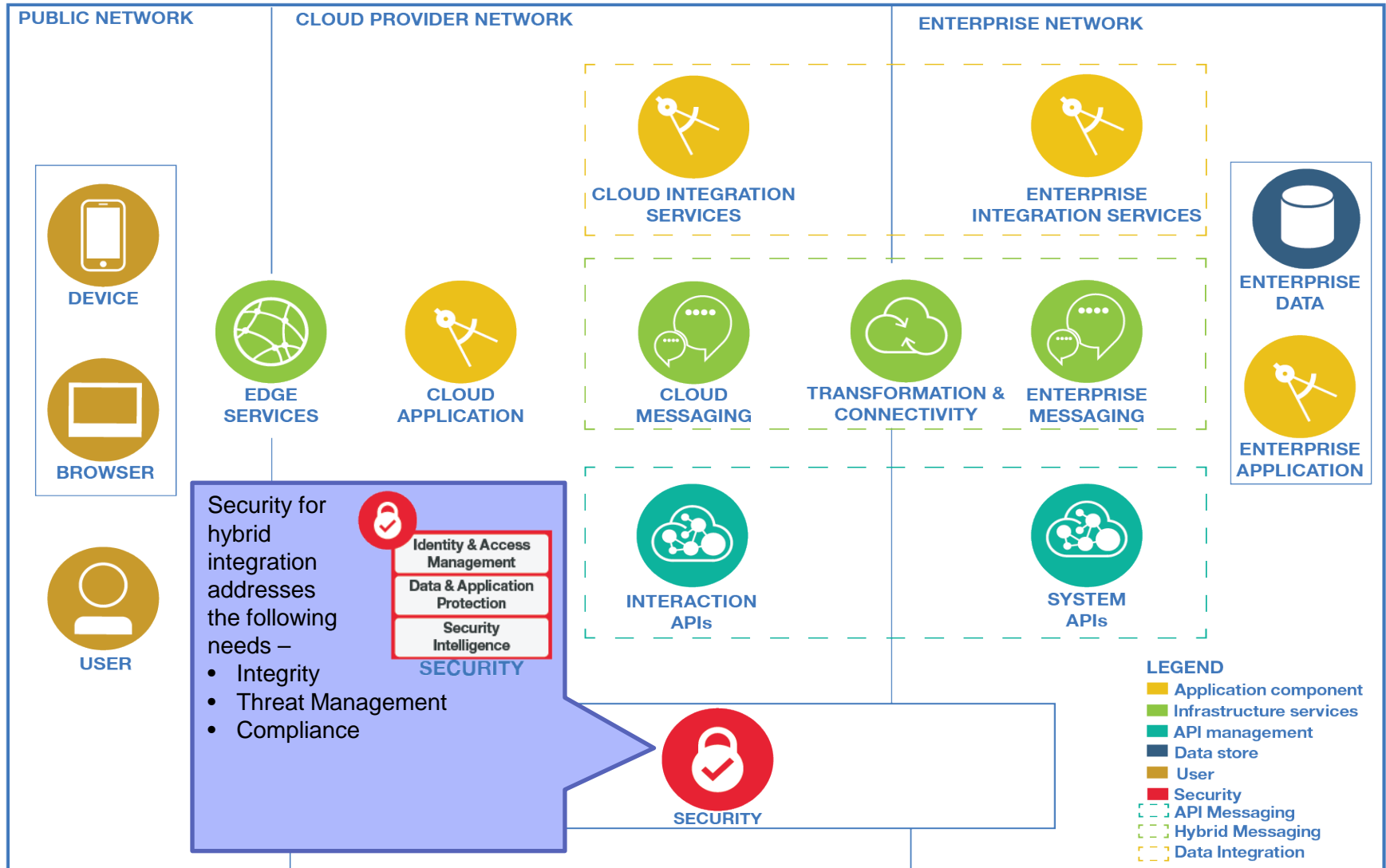
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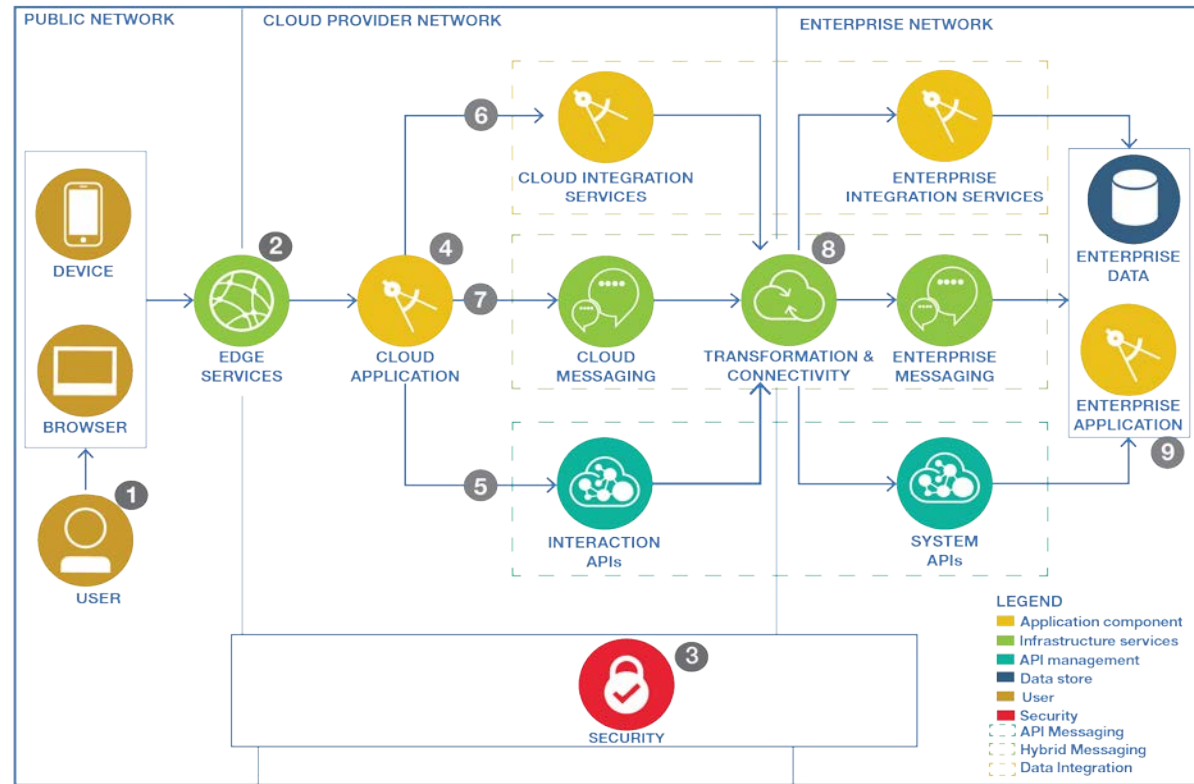


Cloud Customer Reference Architecture for Hybrid Integration

Runtime Flow – Use Case 1

In the scenario depicted, the CTO of an international bank wants to unlock the value of the bank's business assets by deploying a set of fine-grained system APIs that expose key enterprise capabilities and processes. The CMO wants to expand the bank's market reach by deploying cloud applications and APIs to new interactive channels that would use these enterprise capabilities to accelerate banking transactions and improve the customer experience.

1. Bank customer accesses the cloud application
2. Edge services process the request and route it to the right destination.
3. The user is validated through identity and access management.
4. The request is received by the cloud application Making use of asynchronous processing, the cloud application invokes the Interaction APIs and Cloud Integration Services components.
5. The Interaction APIs component receives the request and determines the services that need to be invoked. In order to process the request, this component makes several successive calls to the System APIs component.



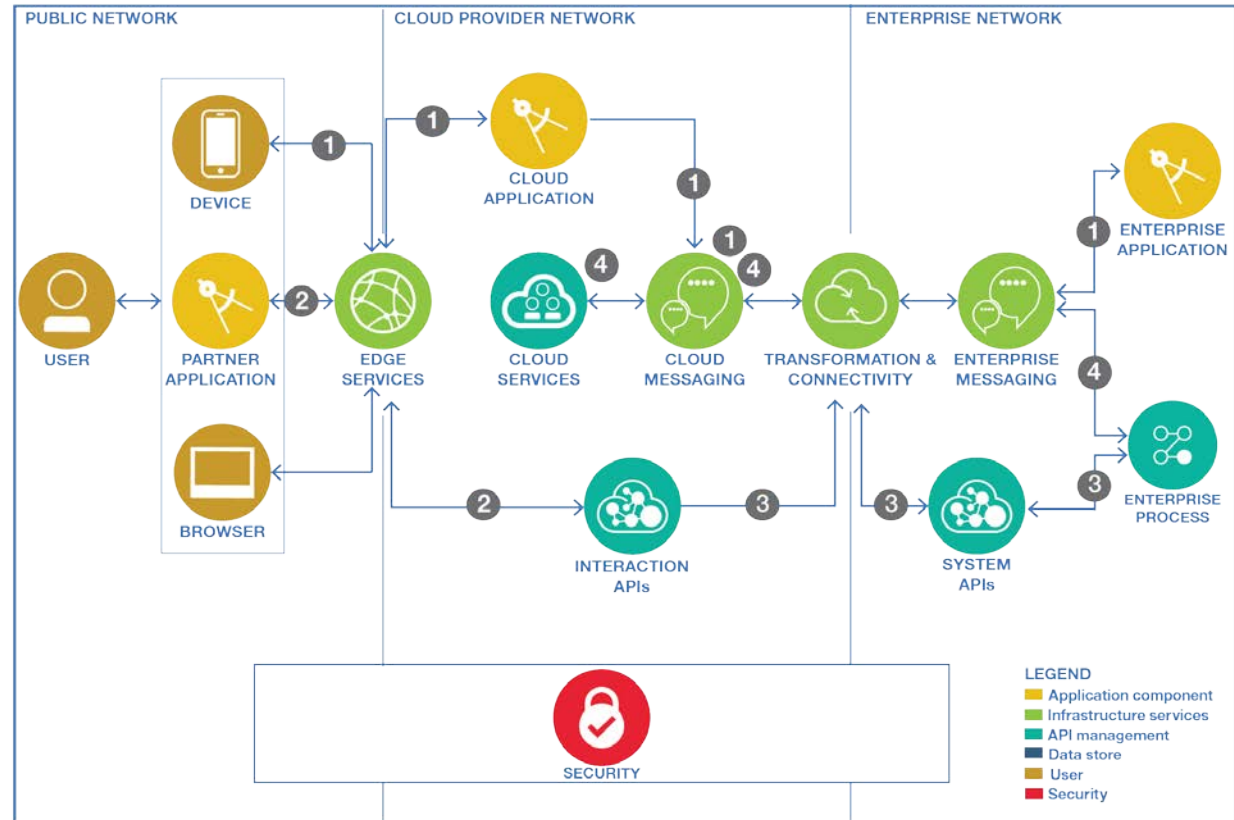
6. The request is received by the Cloud Integration Services component to access enterprise data. This component interfaces with the Enterprise Integration Services component to retrieve and return enterprise system of record data.
7. Cloud Messaging allows the processing of events and triggers across cloud applications and on-prem enterprise applications.
8. The Secure Transformation and Connectivity component routes the API request to the System APIs component and the data request to the Enterprise Integration Services component.
9. The enterprise application and data components process their requests. The responses are returned back through the enterprise and cloud gateways to the cloud application. The cloud application prepares and returns a response back to the User.

Cloud Customer Reference Architecture for Hybrid Integration

Runtime Flow – Use Case 2

The schematic illustrates a scenario where an insurance company is rewarding their members with annual premium discounts for participating in fitness activities. However, they do not want high risk members to over exert themselves creating a health crisis. When such a situation is determined, the company sends alert notifications to the member.

1. The member uses a mobile app to log their calories and track their walking steps. These events are sent to the cloud app which in turn places them in the queue for the on-prem application to aggregate and compute the discount percentage on the premium.
2. The member's primary doctor receives the test results. He logs into his hospital's portal to report the test data. As a partner to the insurance company, the hospital's portal invokes an interaction API to the report the data.
3. The interaction API invokes an on-prem system API to process the data.



4. The system API triggers an enterprise business process to handle the data. The business process using business rules detects that the member is having a heart arrhythmia condition and is participating a rigorous fitness activity. It then sends an alert to the following cloud services: Mobile Push Notification to send an SMS text or mobile alert to the member.

Call to Action



▪ *Join the CSCC Now!*

- To have an impact on customer use case based standards requirements
- To learn about all Cloud Standards within one organization
- To help define the CSCC's future roadmap
- Membership is free & easy: <http://www.cloud-council.org/become-a-member>

▪ *Get Involved!*

- Join one or more of the CSCC Working Groups
<http://www.cloud-council.org/workinggroups>

▪ *Leverage CSCC Collateral*

- Visit <http://www.cloud-council.org/resource-hub>

Additional Resources from the CSCC



Whitepapers

- ***Practical Guide to Hybrid Cloud Computing***
<http://www.cloud-council.org/deliverables/practical-guide-to-hybrid-cloud-computing.htm>
- ***Practical Guide to Cloud Service Agreements***
<http://www.cloud-council.org/deliverables/practical-guide-to-cloud-service-agreements.htm>
- ***Security for Cloud Computing: 10 Steps to Ensure Success***
<http://www.cloud-council.org/deliverables/security-for-cloud-computing-10-steps-to-ensure-success.htm>

Cloud Customer Reference Architectures

- ***Web Application Hosting***
<http://www.cloud-council.org/deliverables/cloud-customer-architecture-for-web-application-hosting.htm>
- ***Big Data & Analytics***
<http://www.cloud-council.org/deliverables/cloud-customer-architecture-for-big-data-and-analytics.htm>
- ***IoT***
<http://www.cloud-council.org/deliverables/cloud-customer-architecture-for-iot.htm>
- ***Mobile***
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- ***And more!***

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The background is a solid blue color with a complex, repeating pattern of overlapping geometric shapes. These shapes include circles, squares, and semi-circles, some of which are filled with lighter shades of blue, creating a layered, mosaic-like effect. The overall aesthetic is modern and clean.

Thank You