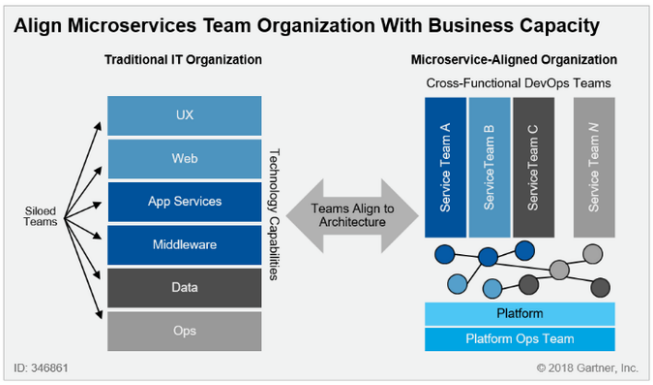
Cloud Architecture, Reliability and Engineering

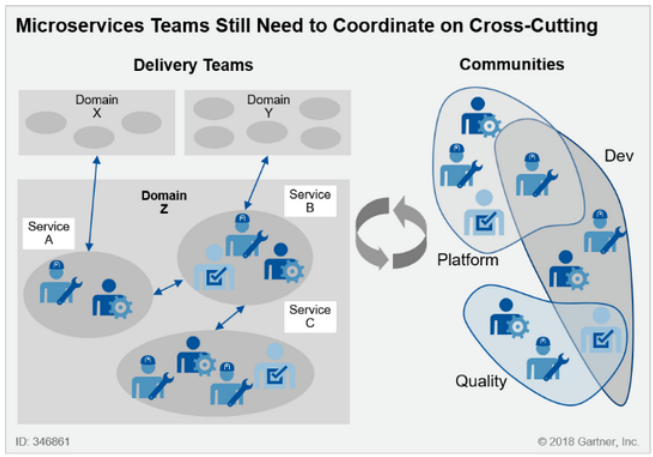
What is CARE?

We have a suite of supporting services that enable building, running, scaling, and monitoring of OCC's business applications in an automated, resilient, and secure manner. Consistent with OCC's Cloud Strategy, CARE aims to provide a consistent technology environment for designing, building, deploying, and managing OCC's core clearing and risk applications.

CARE supports business-aligned, cross-functional service teams

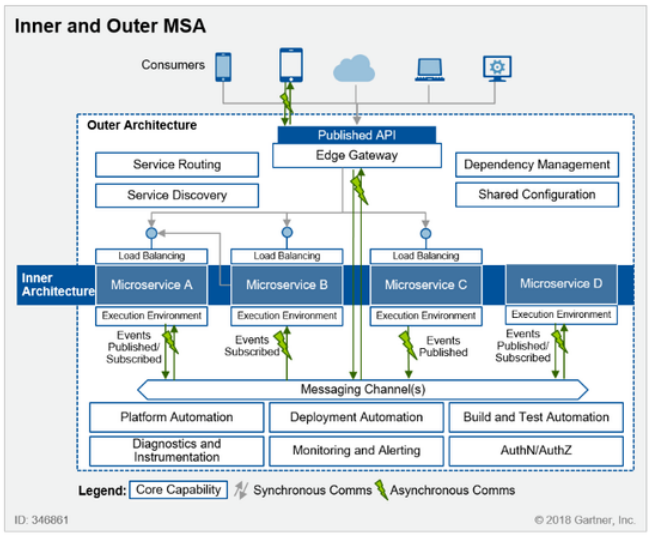


Source: Gartner (March 2018)



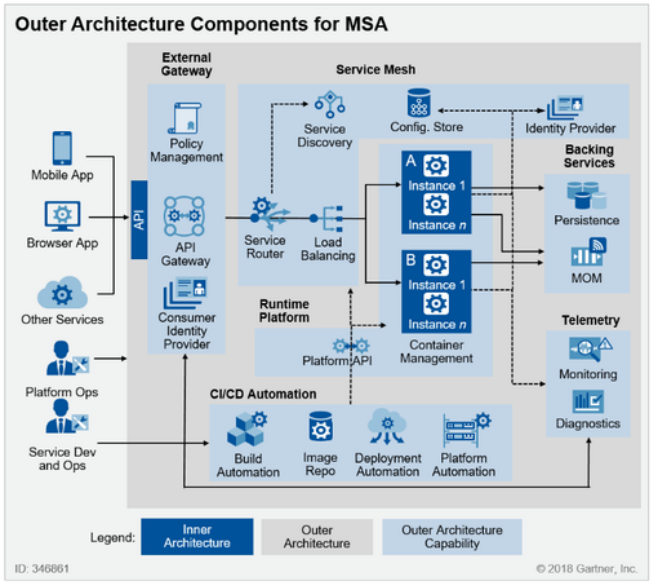
Source: Gartner (March 2018)

CARE provides the Outer Architecture that support microservices



AuthN/AuthZ = authentication/authorization

Source: Gartner (March 2018)



Source: Gartner (March 2018)

Applications are responsible for their own resiliency (HA/DR) requirements.

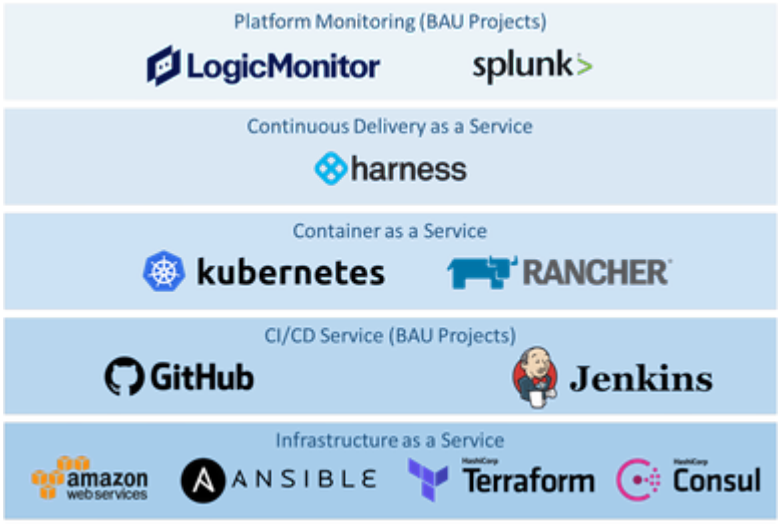
Unlike ENCORE, each development team is responsible for the resilience of their applications. ENCORE has a one-size-fits-all high availability and disaster recovery (HA/DR) model that is implemented at the infrastructure level. It works for many of the batch applications, but is very costly and is cumbersome for newer, real-time applications. The platform should provide the flexibility for applications to utilize an HA/DR strategy that fits their needs and architecture by providing the building blocks (aka platform services) and solution guidance with which development teams can build a resilient application. The Platform Team is responsible for the resilience of the platform services, for specifying the service level agreements (SLAs) that development teams can expect of those services, and for ensuring those services provide the features necessary to build resilient applications. Development teams are responsible for designing their applications around those services in a manner that results in resilient applications that can meet their own SLAs.

CARE Capabilities

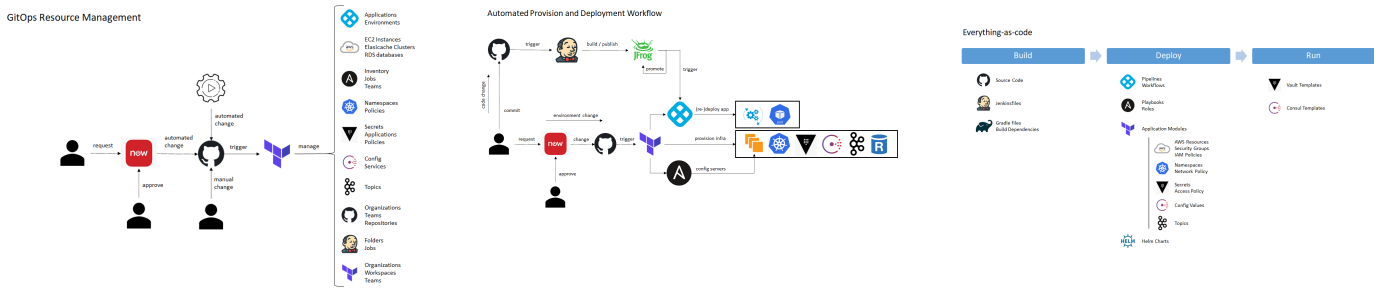
CARE Technologies

- Platform Monitoring (BAU Projects)
- Continuous Delivery as a Service
- Container as a Service
- CI/CD Service (BAU Projects)
- Infrastructure as a Service

Technologies currently in place or under consideration.



CARE Technology Integration



Technology Adoption

CARE desires to enable developer agility by providing as much pre-baked, CARE-supported services and solution guidance as possible. However, we only have so much bandwidth and can't tackle everything. To avoid becoming a bottleneck for innovation, we have adopted the position that if a development team wants to use a new technology that is not provided by CARE – even if it could be considered a CARE technology – they are welcome to do so, but must own the technology and accept that they are entirely responsible for any procurement, Architecture Review Board (ARB) approval, installation, ongoing operations, ongoing maintenance, documentation, control implementation, config baseline definition, and etc. for that technology. If and when the technology gains wider adoption (such as being used by several development teams and/or being used by development teams across multiple business domains) and CARE has the bandwidth to do so, we may choose to centralize standardization and management of that technology by releasing a new platform service which incorporates the technology and assume ownership responsibilities of the technology. After which, new applications can use the new platform service and existing applications can migrate to the new platform service when it makes sense to do so.

Diagram Sources

Platform Theory of Operation.pptx