The Composable Telco

EXECUTIVE SUMMARY

Every telco today is engaged in a Darwinian struggle to adapt rapidly to changing conditions. As the world evolves at an ever-accelerating pace, being agile enough to change with it is a top requirement. Operators are under huge pressure to change as their customers become more demanding, value-chain relationships grow more complex and regulation is rewritten for the digital age. The types and volume of customer-facing services they are expected to deliver is exploding. Operators are deluged with new technologies – most recently, the technologies that underpin network virtualization, 5G and the Internet of Things (IoT).

The perfect storm of business model, service, customer expectation and technology change hitting telcos today is linked to the transformational nature of software. The digital services and cloud revolutions of the past decade have been software-driven, and now software is disruptively changing the nature of the network and how operators deliver services. Webscale companies are demonstrating daily that the ability to create and manage software is critical to business operations and competitive survival. They are well down the path of defining their spectrum of business capabilities as pre-tested, management-ready, reusable software components. They use extreme automation to instantiate and manage these components on their software-driven (cloud) infrastructure in different combinations, in response to end-user needs. And they can change these combinations rapidly and continually through continuous integration/deployment. Webscale companies are the pioneers of business composability.

Software is programmable. It can be told to do things; increasingly, it can tell itself to do things. Software-driven automation makes processes faster, allowing companies to respond more quickly to change. It also helps to control change, especially when there are more variables than humans can comfortably deal with in time – for example, the management of the virtualized network, where there will potentially be too many virtualized components and services, changing too quickly at high scale, for any kind of manual-based controls to succeed.

However, traditional approaches to software automation are often static, inflexible and created in silos for siloed use. Businesses – and particularly telcos, which need to deliver and manage customer-facing services holistically, across increasingly software-driven networks – want a means of composing building blocks of software automation on demand and in response to specific business needs. They need a new approach to exploiting the plasticity of software that will enable them to shape and morph the business in new ways. This *composable* approach is a work in progress, but its enablers are already apparent: the microservices software development paradigm, open application programming interfaces (APIs), metamodels and standard/open source data-modeling languages.

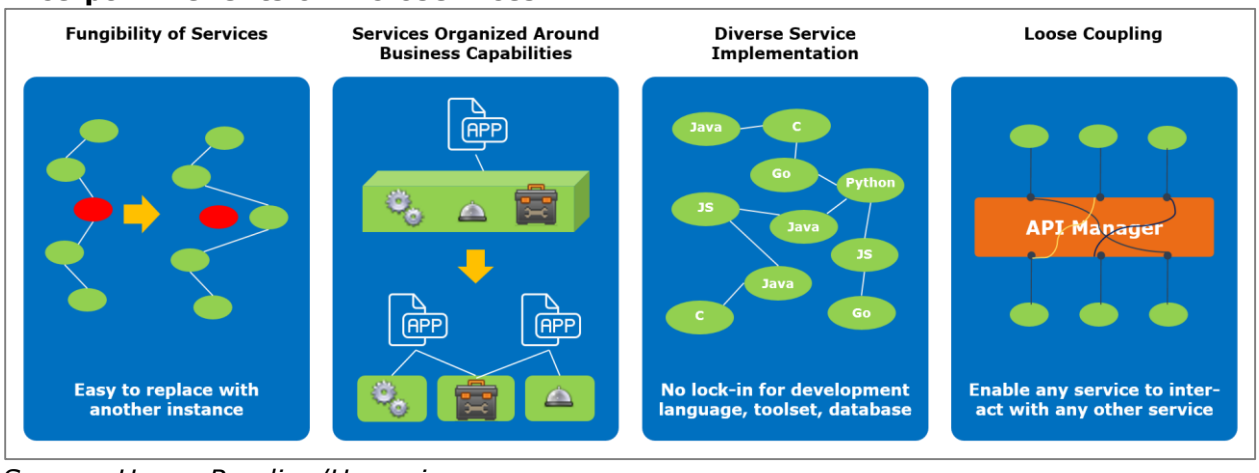
The race is on to bring these concepts and technologies together in an integration and automation platform that enable software components to be composed and executed together regardless of how they've been developed, what their interfaces look like and what they do. Such a platform needs to support composability at a level of abstraction above the messy physical world, in which all the software systems that need to be integrated are "snowflakes." It needs to remove the manual pain of integrating open APIs. And it represents the opportunity to create new service value in the form of new types of composite services as yet difficult to achieve using the current generation of software integration mechanisms.

This report helps readers understand the drivers for the composable telco:

- **Section 2** discusses what composability is and why it's important.
- **Section 3** examines the key building blocks of composability mentioned above, including the critical importance of a generic metamodel that satisfies Level 6 (Composability) of the Levels of Conceptual Interoperability Model (LCIM).
- **Section 4** explores the service orchestration issues associated with lifecycle managing compositions of software components.
- **Section 5** looks at the service orchestration vendor landscape and the diversity of metamodel approaches that vendors are taking; it also profiles three startup vendors with innovative approaches to composable integration and automation.

The twin forces of the digital service economy and the cloud are influencing software development organizations to produce smaller and smaller services whose function is deliberately transparent. Increasingly, IT services are being developed using a new design pattern known as microservices. This is particularly conducive to the rapid delivery of IT services destined for execution in the cloud. The excerpt below illustrates the key features of microservices.

Excerpt 1: Benefits of Microservices



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