# Making digital transformation a reality

Greater innovation, productivity, speed and business value are coming to fruition as critical business functions become available in communications-driven, cloud-native environments that encourage microservices, writes Doug Suriano, senior vice president and general manager at Oracle Communications

In the NOW economy, the pace of innovation has accelerated and business models have changed rapidly. Think of Uber, airbnb, Amazon, Netflix, WhatsApp, GE (industrial internet), and CVS (digitised healthcare) and the online, mobile-first platforms that have caused disruption in both nascent and well-established industries.

By leveraging virtualised, software-driven and cloud-enabled infrastructure, NOW Economy innovators have proven that communications can be a strategic competitive advantage in a world where almost everything communicates, such as people, apps, devices, sensors and "things". Ubiquitous communications has changed how people engage in all dimension of life, whether health, home, work, automobile, appliance, energy, transportation, food, or others.

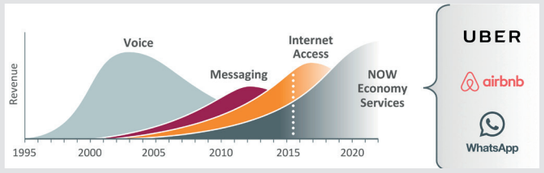



Figure 1. Communications permeates and fosters disruption (and opportunity)

With communications-enablement of cloud services expected to permeate all layers of cloud, worldwide spend on communications will more than double by 2025, making it a $5.1 trillion market.

CIOs and IT executives in all industries will focus increasingly on how communications affects the customer experience and how to create and provision compelling and innovative services rapidly and efficiently enough to reduce CapEx and OpEx.

Thankfully, cloud has matured enough that scalable and affordable private, public, hybrid and managed services options accommodate virtually any company in the throes of transitioning from physical to virtual.

As that evolution takes place, we see a further sophistication with the move from simple data centre hosing to "cloud-native" environments in which software is built from the ground up to capitalise on all of the capabilities of the cloud infrastructure, platforms and cloud environment. In other words, software will be optimised for the cloud for the highest level of performance, as well as near-instant configuration, provisioning and deployment capabilities. The purpose would be to build on the "agile and lean" movement with a DevOps culture of delivering greater business value by accelerating the development, testing, deployment and operations lifecycle of services, as well as mitigating unplanned application downtime and spreading development workloads more efficiently.

## THINK BIG BY THINKING SMALL

Since rapid configurability and re-use of service architecture components are critical in the NOW Economy, microservices will be the architecture in which different collections of similar functions will be converted into services (as hosted components). Discrete, reconfigurable pieces of applications will be re-assembled quickly for rapid deployment and updates. The small, single-purpose bits of code will scale independently, and therefore adapt or change without requiring all pieces to do the same.

Important is the fact each microservice has its own team composed of developers, testers, product managers, and operations, with a large measure of autonomy for each microservice team.

Microservices further the concepts of categorisation and replaceability through a pattern of change. They define a service over all application layers, including the UI (unlike platform-driven SOA approaches). That means more choices for restoring some of the flexibility that at times had been lost in monolithic SOAs.

Because microservices are independently deployable, individual services within an application can be independently upgraded, or even gradually swapped out for those based on more-modern technologies. This is particularly useful in scenarios where legacy applications must be replaced or re-implemented with more modern technologies.

By subscribing to different services through the cloud, businesses can become more agile and efficient in an 'as a service' environment, where customisation is no longer necessary and new functions can be delivered via re-configuration. Through the public cloud and APIs, businesses can achieve operational efficiency and virtually unlimited agility and scalability.

In that vein, Oracle Communications will continue making strategic portfolio-wide investments in next-generation infrastructure for performance and security, as well as in microservices architecture to network-enable not just its communications apps, but a wide range of services benefiting from communications enablement as well.

## THE NEXT STEP: WEB SCALE AT WEB COST

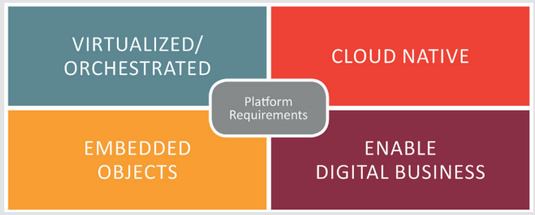
For businesses seeking the highest levels of web scale for optimal resilience, performance and security, "bare metal-as-a-service" is emerging as an option for conquering some of the performance issues that plagued shared-tenant virtual machines.

Bare metal enhances performance by placing the application directly on the processing platform, reducing or even eliminating the overhead associated with support functions. Further, applications can perform better when the networking is built in from the beginning, using SDN techniques ensuring both performance and flexibility, rather than being "bolted on" as an afterthought.

Bare metal-as-a-service can be an environment that moves us to true "web scale," as it becomes possible to realise the benefits of "web cost," which means you pay only for the CPU cycles consumed, the bytes placed in storage, and the bytes transported on the network. This is what keeps you competitive in the NOW Economy: less over-engineering for peak loads and minimising CapEx and OpEx.

## KEY AREAS OF NOW ECONOMY INVESTMENT

In order to handle the communications, cloud and ultra-scale IoT needs of the NOW Economy, there are key areas in which to invest:




**1. Cloud-native platforms**

Continuous innovation is achieved through ubiquitously available and flexible open source components that work together to support frequent software adjustments through the cloud. It means that services can be developed on a cloud platform, then deployed to different clouds where supporting software stacks will help them run at scale.

**2. Virtualisation/orchestration**

Virtualisation/optimisation moves companies beyond the limitations of proprietary hardware and platform capabilities. Virtualisation on its own is not enough, as you must also orchestrate the interactions that take place between virtual network functions (VNFs) and physical network functions (PNFs). It's the coordination of service design all the way through to data center operation that helps organisations optimise the effectiveness of virtualisation, the purpose of which is dynamic configuration of resources through finely controlled, quick-assembly service delivery that enables you to experiment with new services and test network or customer segments.

**3. IoT enablement**

As 5G and IoT capabilities build, insights and controls will be gathered through real-time monitoring and transmission of the data generated by different devices, machines and sensors. This will help businesses, governments and people to extend the life of assets, improve safety and security, and work to enhance life and work experiences through higher degrees of personalisation. This is where business models are revolutionised, as business and CSPs will be able to compete on innovation, value and CX as opposed to price.

**4. Digital-business enablement**

Remove friction among business models, systems, applications and service by putting a greater focus on IT and network convergence, and on cloud services that minimise costs and optimise performance, customer experience and revenues. This will be increasingly important as value chains become more intricate and as the landscape of players and business models becomes more diverse.

With investment in each area, organisations move toward the next generation of infrastructure and cloud service capability, the goal being data sovereignty, control and performance that enables them to transform toward communications-enablement and the cloud-driven power and flexibility to build microservices-based applications that are secure, adaptable and scalable enough to accommodate existing and fast-emerging business models and customer and employee expectations.

To find out more about Oracle Communications' cloud solutions, networking applications and monetisation and orchestration capabilities, visit www.oracle.com

With more than 420,000 customers and deployments in more than 145 countries, Oracle offers a comprehensive and fully integrated stack of cloud applications, platform services, and engineered systems.

Oracle Communications helps network operators, enterprises and digital lifestyle providers innovate and adapt for the NOW Economy, a virtualised, orchestrated, software-driven and cloud-enabled future where communications is the key to strategic competitive advantage. In the NOW Economy, the world's multi-trillion-dollar business, industry, network and customer interactions are available on-demand, infused with context- driven intelligence and analytic insight, and able to be easily re-configured. Oracle's combined network and IT expertise is unparalleled. See how we will take you to the NOW Economy.

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