‹MobiledgeX›™

How Latency Reduction Can Improve the User Experience for Mobile Applications

Overview

Improving the User Experience for Mobile App Users

Mobile applications are a vital part of modern society. Applications that are slow, unresponsive, or provide intermittent access to the tools, services, and data that we require on a daily basis tend to get dropped in favor of app alternatives that work better and more effectively. How can mobile app developers – and mobile network operators (MNOs) – ensure that end users are getting the best possible user experience with their mobile applications?

Two of the biggest problems facing MNOs and mobile app developers are the challenges of latency reduction and burst-mode scaling. Let's discuss how the MobiledgeX Edge-Cloud platform can help solve both challenges.

The Challenge

Addressing Latency

Currently, cloud services offer innovators and developers opportunities to build and host their applications from the data centers provided by cloud-based companies. While this approach addresses some use cases requiring a predictable connection with reasonable response time, cloud computing has difficulty supporting bi-directional data when optimal performance is needed. Typically, data travels bi-directionally from the data center to where the data is intended to be consumed. Along the way, latency and jitter are introduced as the information travels between its origin and destination. Characteristically, developers seek to deploy mobile applications virtually to their users, regardless of user location and region. This virtual positioning lessens the latency and jitter associated with the use of their deployed applications. Also, applications connecting numerous devices inherit latency issues due to the bi-directional data exchange, which is generally associated with cloud services. With these severe issues, users lose application performance and the opportunity to experience the full potential of the developer's vision. With the advent of more devices to support technological advances, such as AI, are introduced to the market, the need to move quickly and handle increasing workloads must be met. Today, users must consume and access their applications instantaneously and without delay. A sustainable solution is needed to reduce the many difficulties plaguing application deployment.

Balancing Application Deployment and Management on a Vast Scale

Developers know balancing the deployment and management of applications on a vast scale is necessary. Unfortunately, satisfying the customers' modern needs is challenging with centralized data centers. Centralization is often the bottleneck for developers who require their applications to be deployed and managed across varying sites and numerous operators, and does not provide practical solutions to the following challenges:

- With sharp increases in client devices every year, the ability to ensure that all endpoints are served and that users will not experience degradation in performance is not readily supported by centralized data centers.

- The governance of autoscaling resources for applications is a unique and problematic challenge within the centralized data centers. Autoscaling is necessary for developers to keep up with the demands of deploying and un-deploying applications when and where they are needed to avoid user downtime.

The Solution: The MobiledgeX Edge-Cloud Platform

MobiledgeX's solution is two-fold; we have created a platform for developers to deploy and manage their applications and resources quickly, giving developers the needed access to their resources and microdata services to consume. Unlike cloud computing and its services, our platform incorporates edge computing, where an aggregate set of edge cloud services offer developers advantages for superior application deployment. Also, for users that utilize upstream data requiring real-time applications, our platform provides solutions and a host of other benefits as the alternative to traditional deployment methods and hosting of applications, bringing users closer to the devices and services provided by the developers. And thus, it enters the operator-managed edge cloud.

Utilizing existing operator edge cloud infrastructure, which consists of a network of services that include transmission towers and data centers, called cloudlets, we enable operators to consolidate these services into a federated cloud. Developers can then consume these services to take advantage of low latency for applications deployed. By drawing from these compute resources from locations in closer virtual proximity to their user, developers can open new possibilities to develop mobile applications from remote rendering.

MobiledgeX is all about effortless deployment and application management. Through distributed computing paradigm methodology, developers can use auto-scaling and policies for redundancy to maintain the most optimal performance levels for their applications. Our platform is robust where both operators and developers can come together using a unified self-service console. Developers use our console to perform tasks that promote ease of use for applications, orchestration, and deployment across multiple distributed edge structures while gaining access to operator cloudlets to deploy their workloads. Operators use the same platform to host their infrastructure and provide resources that enable developers to access their services. The market transformation requires more devices to connect across different industries, which has propelled a new wave of requirements from developers and operators. We bring developers and operators together to help them realize the potential of edge cloud computing as a solution to quickly go to market with new mobile applications and monetize on new business models.

Developer Benefits

The following section lists some of the benefits developers can expect using our MobiledgeX Edge-Cloud platform.

Application Deployment and Management

Choose your application type
Developers can choose to deploy supported application types: VM, docker, Kubernetes, helm, and GPU.

Autonomous application deployment
Policy-driven, multi-site application orchestration and deployment promote a 'serverless' and 'effortless' experience that eliminates the need for manual, per-site application deployment and management

Take advantage of the Mobile SDKs
Use our mobile SDKs built on top of our APIs to find your client application's closest deployed application instances. With a few function calls leveraging the device's cellular connection and geo-location, maintaining an edge connection as a device's network state or geo-location changes has never been easier.

Stellar application operational experience
View application health, usage, and metrics across client devices and locations over time to monitor application activity occurring within cloudlets and counteract irregularities within the system. Drill down to the specific events to uncover usage trends to measure usage engagements.

Operator Benefits

The following section lists some of the benefits operators can expect using our MobiledgeX Edge-Cloud platform.

Choice, Control, and Trust with Edge Clouds

Infrastructure agnostic
Our Cloudlet Manager Plugin lowers the barrier of entry and makes it easy for operators to leverage their existing IaaS network edge infrastructure to avoid vendor lock-in and provide a multi-cloud, multi-vendor, and multi-access edge cloud solution.

Operational readiness
Leverage the MobiledgeX Controller as the resource manager rather than rely on the IaaS layer to determine the resource availability of cloudlets. Further, detailed historical data of cloudlet resources and usage can be viewed and saved through generated reports set up and managed by operators.

For a complete list of **developer features**, refer to https://developers.mobiledgex.com and https://mobiledgex.com/blog.

For a complete list of **operator features**, refer to https://operators.mobiledgex.com and https://mobiledgex.com/blog

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