



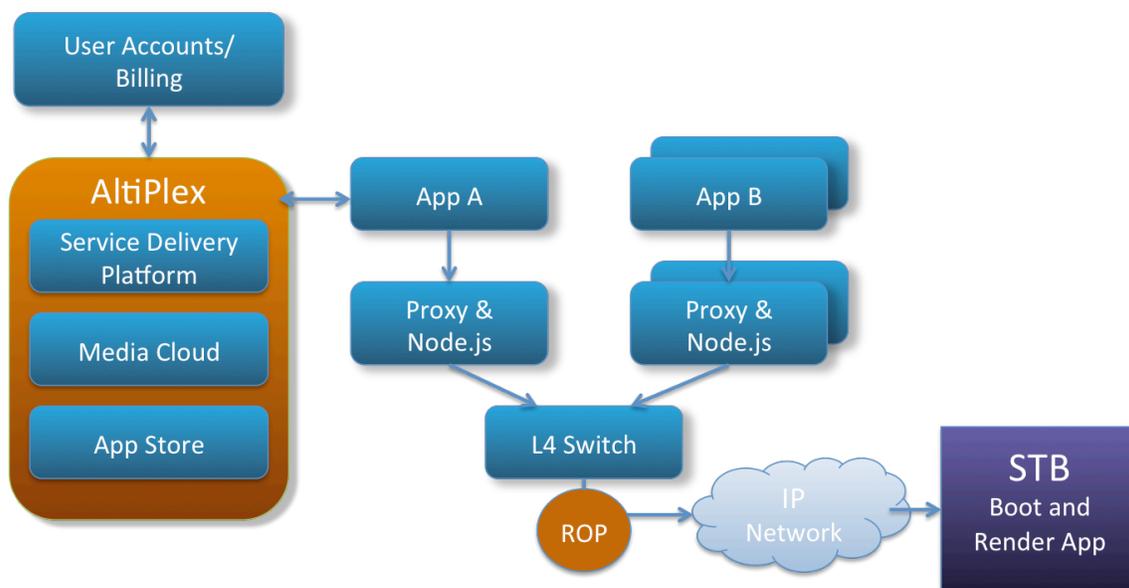
## Extending the User Experience with Cloud Computing

The Alticast flexible Cloud UI solution broadens the utilization of the STB and household device ecosystem by providing a solution that extends the STB life cycle, allows for high-quality UI design, includes different UIs across devices, and facilitates TV Everywhere delivery. By moving functionality to the Cloud, a richer UI design is possible for many STBs and other consumer devices without the need for high-performance CPUs. Cloud UI allows operators to deliver a high quality and personalized customer media experience.

### Cloud UI Features

- Utilizes client-server thin client model
- Delivers video and images separately from UI graphics
- Allows complex animations for low CPU clients, including legacy STBs
- Includes Wind 3.0 2D/3D graphics acceleration engine API
- Maximizes user-to-server architecture design
- Reduces CPU and GPU power consumption on client
- Scales resolution automatically to target devices using OSMU
- Uses vector graphics rendering
- Includes media API for operator-level controls
- Provides multiple UI choices for different devices

### Cloud UI Framework



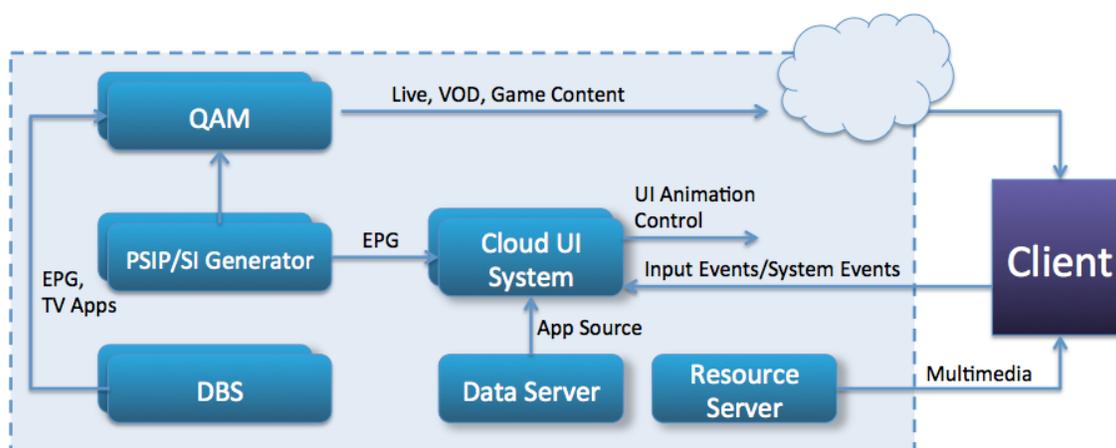
## Operator Console: Multiple UIs

The Alticast Cloud UI provides a web-based console that allows the operator to assign UIs to STBs in the field. Changing the UI is virtually instantaneous. Along with reducing the necessary power for the STB for the User Experience, this virtualized server-client architecture provides a number of other advantages, including the ability to send different UIs to different devices. This allows operators to target specific groups of STBs for trials, send down diagnostic UIs for testing a box (reducing truck rolls), and to provide different UIs in one household (such as delivering a kid-friendly UI to a child's tablet). It also supports high-performance animation and gaming applications.

The impressive capabilities for high-end UX are achievable with the Alticast Wind3 graphics library and rendering engine. A provided API for this JavaScript-based engine allows for 2D and 3D graphics acceleration of any UI. The Cloud UI also provides for a one-source, multi-use (OSMU) UI design that can be delivered to a variety of devices.

## Cost-Reduced STB

When the service provider places as much intelligence as possible in the Cloud, not only is the cost of developing, testing, and deploying UIs simpler, but further cost savings is achieved by reducing the requirements for the STB and extending the life of legacy boxes.



## High Availability/Maximum User-to-Server Design: Use Case Scenario

The Alticast design provides a load-balanced, high-concurrency architecture that keeps server overhead low. For example, 16,000 concurrent sessions can be provided over a node configured with eight dual-core CPUs. With high-availability load-balancing, this equates to about 200K simultaneous accesses for every three nodes. This configuration would then support a model of one million subscribers with 2% simultaneous access. The architecture would be supported by Cloud UI, data, and resource servers. Depending on the specific feature requirements, this scenario can be modified to require more or fewer resources.