

- Administrators create and manage user accounts
- Accept applications from users and create virtual benches
- Allocate RTPC resources, I/O resources, CAN bus resources, etc. to virtual benches
- To distribute the allocated virtual bench resources to the host EM and RTPC
- Monitor the running status and report the platform status information

FUNCTIONAL MODULES

- **Virtual bench management:** Create and release virtual benches according to the application of users, allocate and release RTPC resources, IO resources, CAN bus resources, etc.
- **Device resource management:** Add, delete and maintain RTPC nodes, bus boards, and IO resource boards for cluster HIL
- **Device Monitoring Center:** Real-time monitoring of the running status of each RTPC node, monitoring CPU resource usage and temperature information, monitoring the running status of the IO resource pool and bus resource pool, and reporting abnormal information
- **User management:** Create, delete and maintain users accounts, group management and user permission configuration
- **Big data visualization:** Real-time display of virtual bench running status, node information, device status statistics, resource usage and device monitoring and early warning information

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CUBESTACK



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CLOUD REAL-TIME SIMULATION TEST SYSTEM



A Cloud Real-time Simulation Test System that test resources are pooled and support flexible resource expansion, multi-task and multi-environment parallel operation, and support remote access.

FEATURES

- **Flexible allocation of resources:** Configurability and scalability enable flexible access to HIL resources
- **Multi-user remote access:** One HIL for one user/multi-users, multi-HIL for one user/multi-users
- **Multi-environment concurrent execution:** multi-user concurrency, multi-environment concurrency
- **Synchronization:** time synchronization and data synchronization for multi-HIL
- **Digital management:** account management, cluster HIL management, remote monitoring, digital reports
- **Automated testing:** support automated script and access to CI/CD system

APPLICATION SCENARIOS

- Multi domain testing of the whole vehicle
- Software concurrency test
- Autonomous driving concurrent perception test
- Real-time simulation and data injection test of multi-sensor signals for autonomous driving
- Establish a test factory to support various testing scenarios and requirements

SYSTEM COMPOSITION



CUBESTACK is a comprehensive testing system consisting of three parts: CUBESTACK's Management Platform, VCARSYSTEM, and CUBESTACK's hardware.

- The CUBESTACK's Management Platform is mainly responsible for user management, configuration of test resources, and monitoring of bench status.
- The VCARSYSTEM is responsible for building test engineering, models, and configuration benches, writing and executing test scripts, and recording test data.
- The hardware part includes key components such as real-time machine RTPC, IO board, load board, bus board, time synchronization board, and cluster management platform server, providing powerful hardware support for testing. These three parts work closely together to ensure efficient, accurate, and reliable testing.

CUBESTACK MANAGEMENT PLATFORM

Workflow

