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www.vi-watt.eu

Cloud Architecture

Unified Point of Control, Monitoring, and Integration

Our cloud platform is built on modern microservices principles and ensures reliable, scalable, and secure data exchange between devices, the mobile application, and energy providers' enterprise systems.

1. API Gateway and Message Bus

- A unified entry point for all device and application requests via a secure HTTPS/MQTT channel.
- An event-driven broker processes telemetry and commands in real time, ensuring low-latency, guaranteed message delivery.

2. Microservices and Containerization

- Each functional component (authorization, data logging, forecasting, billing) is packaged in a separate Docker container, simplifying updates and maintenance.
- Kubernetes orchestration enables auto-recovery, horizontal scaling, and flexible load balancing.

3. Centralized Monitoring and Dashboards

- A unified control panel allows operators and users to view all controller statuses, consumption graphs, and failure alerts in a single interface.
- APM (Application Performance Management) tools monitor microservice performance and responsiveness 24/7.

4. Mobile Application Integration

- The mobile app uses the same API endpoints as corporate systems, ensuring a single source of truth.
- Push notifications and WebSocket channels provide instant event delivery (e.g., faults, tariff changes, token allocation).

5. Operator System Integration

- OpenAPI specifications and connectors via OCPP/MQTT/REST enable integration with EMS/SCADA and billing systems.

- Supports bidirectional synchronization: consumption data and device statuses are automatically sent to the operator, while operational parameters (tariffs, peak load schedules) are returned to the controller.

6. Reliability and Security

- TLS 1.3 certificates on all communication channels, two-factor authentication, and Role-Based Access Control (RBAC).
- Hosting in Tier III data centers with 99.95% SLA and geo-distributed data redundancy.

7. Flexibility and Scalability

- The modular architecture allows easy integration of new analytics services, third-party IoT devices, and smart home extensions.
- A CI/CD pipeline ensures instant releases and integration testing without downtime.

With our cloud architecture, you gain a unified, secure, and scalable platform for boiler management, serving as a seamless bridge between end users, mobile applications, and large energy providers.

**This functionality is currently under development, and some features may not yet be available.*