VOLTDB

Open Source AceCon

2021

智能云边开源峰会

人 工 智 能 × 云 原 生 × 边 缘 计 §

5G万物互联时代的边缘实时计算



实时计费



现代5G应用正在改变数据处理的规则:

策略切换



> 符合5G通信的延时SLAs.

客户管理



> 基于多个信息流做出一致的事件决策

> 测量、监控和检测重要kpi中的偏差。

营收保证



> 确保业务连续性和弹性

调制



> 任何情况下保证数据不丢失

> 需要云原生技术支撑

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> 简化的基础设施和简洁分层.

实时计费



• Real-time data streaming (支持实时数据流处理)

策略切换



• Data filtering and aggregation (支持数据过滤和聚集)

客户管理



Near-zero latency read operations (读操作接近零延迟)

营收保证



Instant analytics (即时分析)

调制



• High availability (高可用)

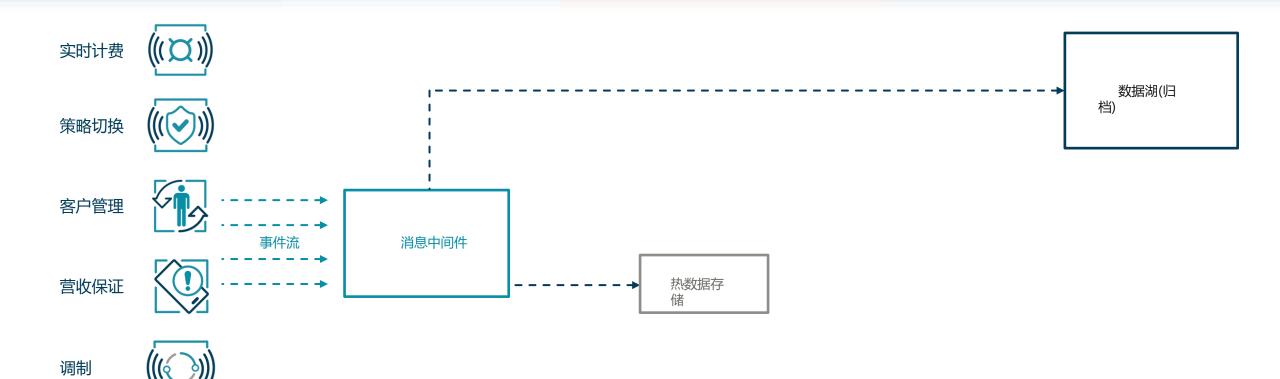
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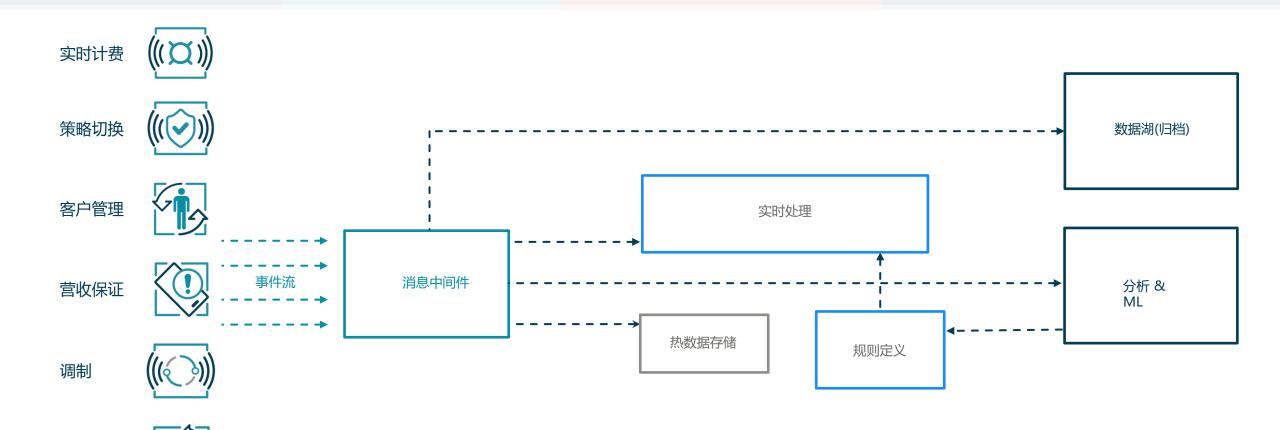
• Geo distribution (地理分布式)

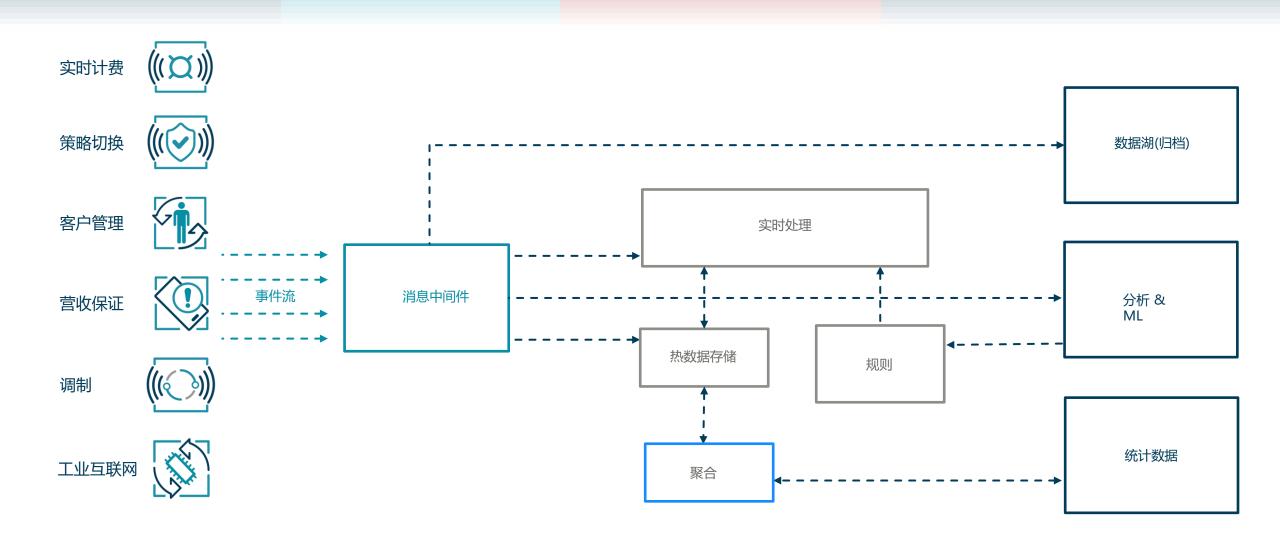
Schema flexibility and many more (模式灵活等)

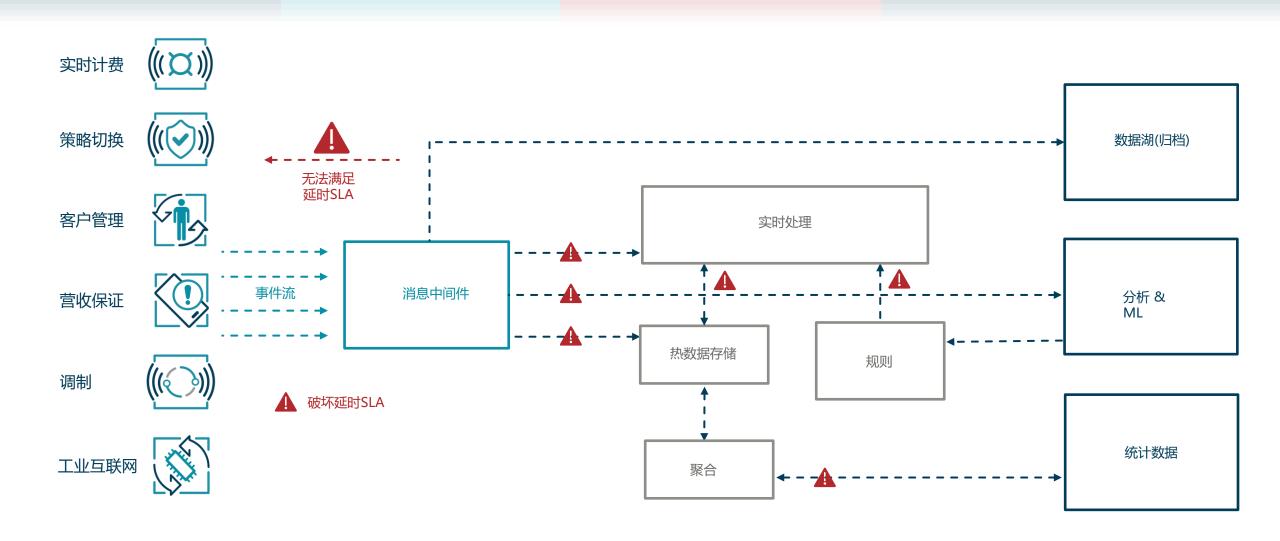
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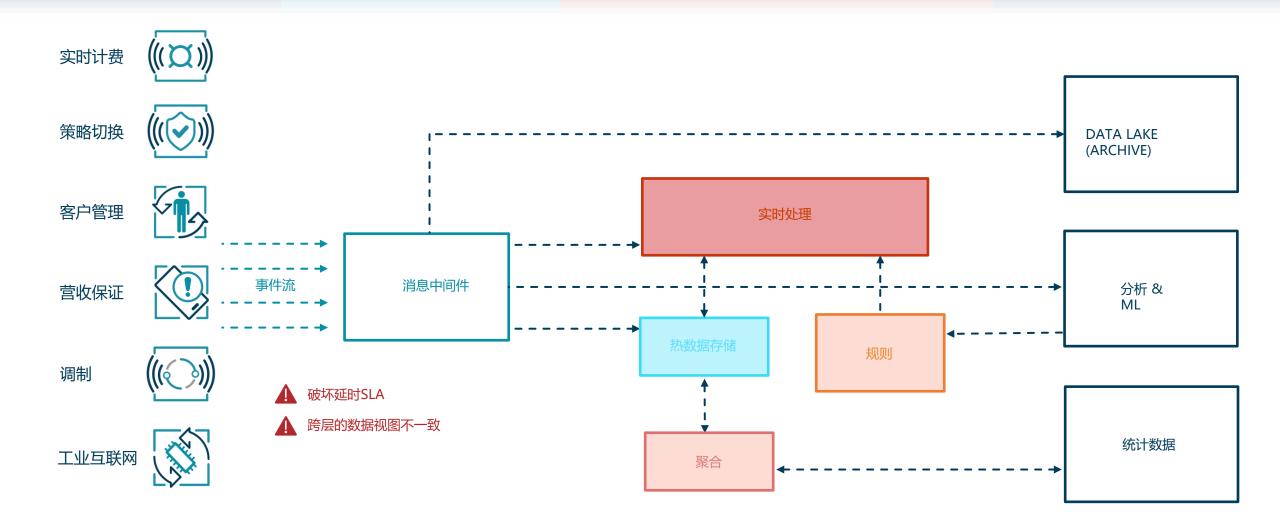


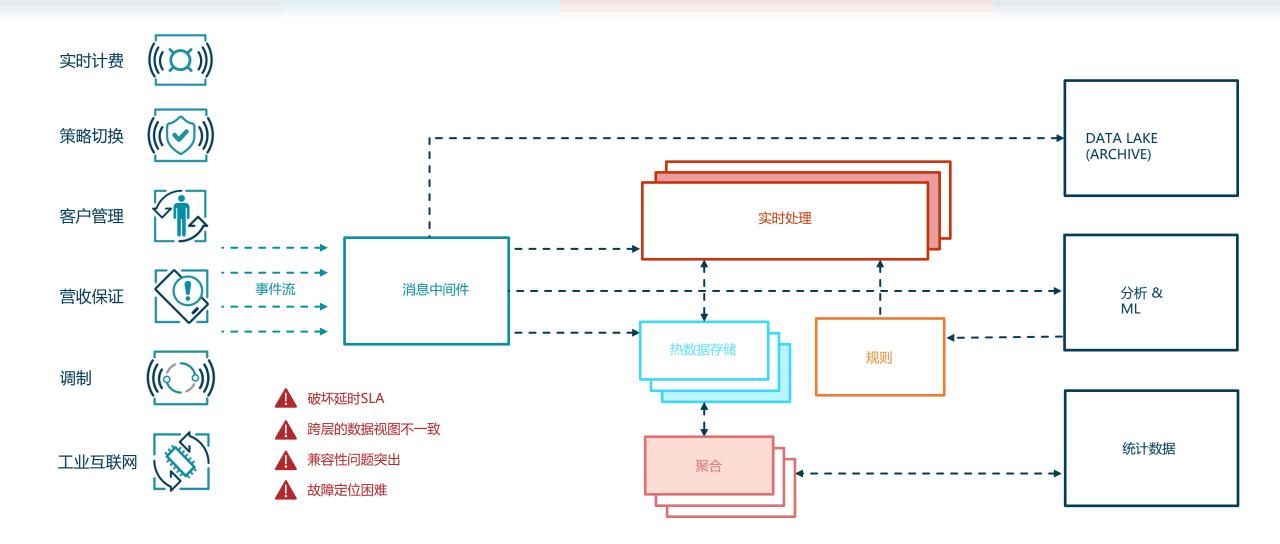
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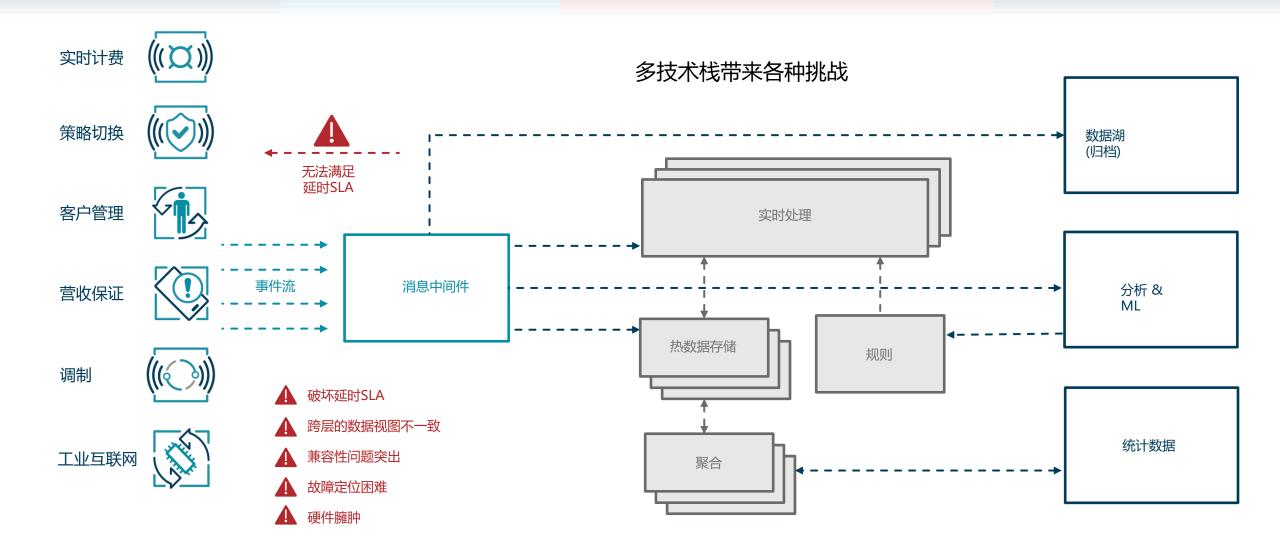


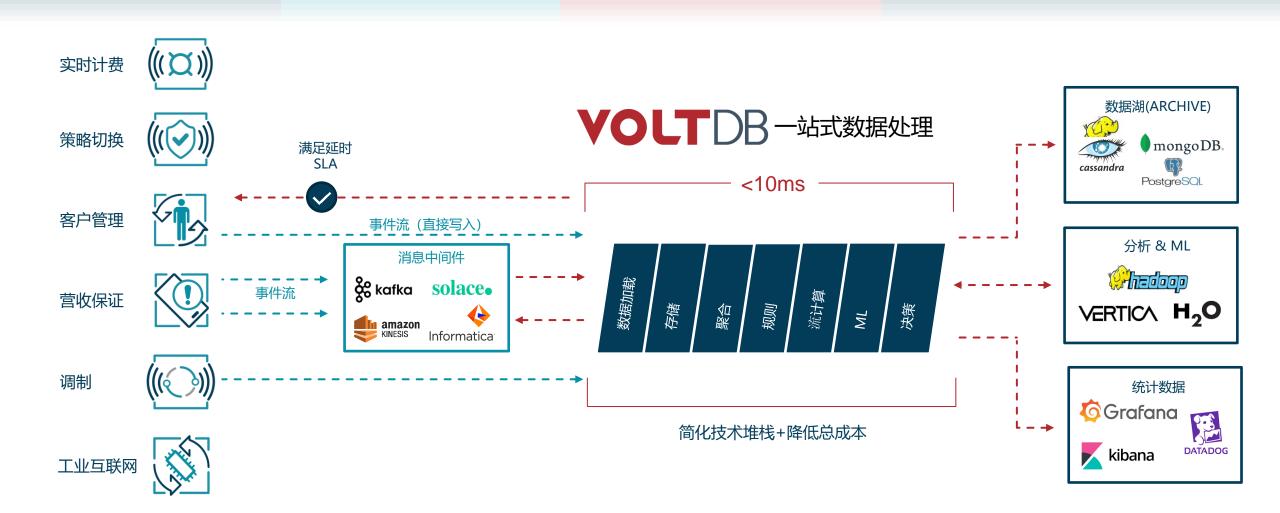












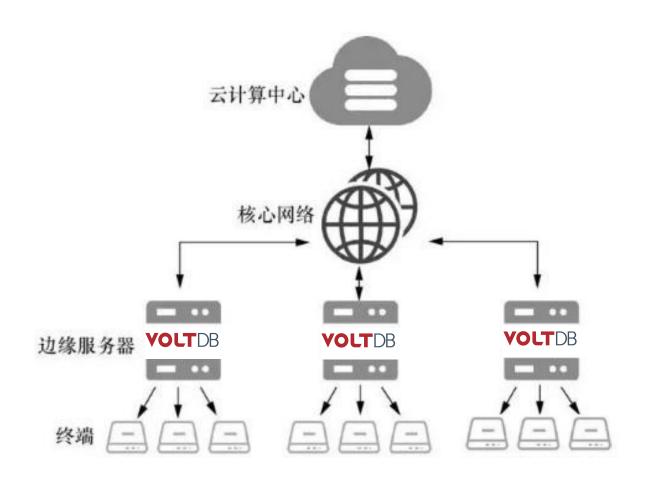
VOLTDB在边缘计算



云边协同的联合式网络结构一般可以分为终端层、边缘计算层和云计算层,如下图所示,各层可以进行层间及跨层通信,各层的组成决定了层级的计算和存储能力,从而决定了各个层级的功能。

边缘计算可以简单理解为靠近设备端的计算+存储设备,应具有数据采集、处理(过滤、转换、分析)、转发、存储(有些数据需要本地存储)的功能,同时需要高并发、高性能和数据安全的保障。

VOLTDB同时具备内存数据库+流式处理功能,集采集、计算、存储、协同于一体,具备低时延响应,实时运算(过滤、清洗、转化、聚合)等功能特性。



支持边缘计算的产品特征

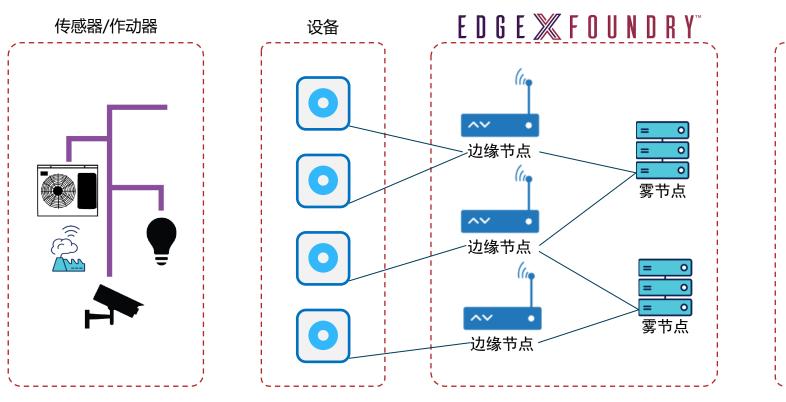
Open Source AceCon 智能云边开源峰会 At Scioud Native x Edge Computing

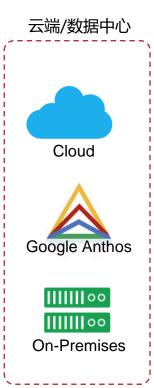
- 轻量级的部署
- CNCF云原生分布式内存数据库
- 源码开放



VoltDB融合EdgeX

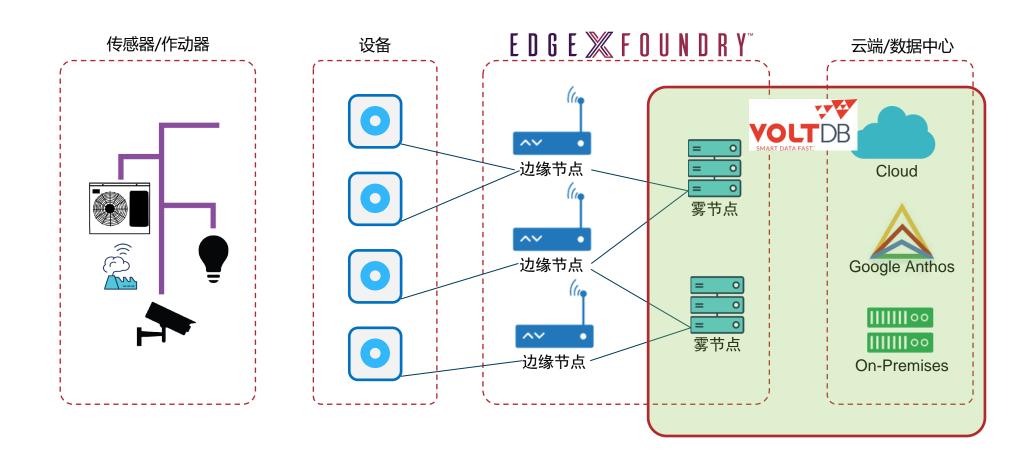






VoltDB融合EdgeX





案例-IOT设备监控

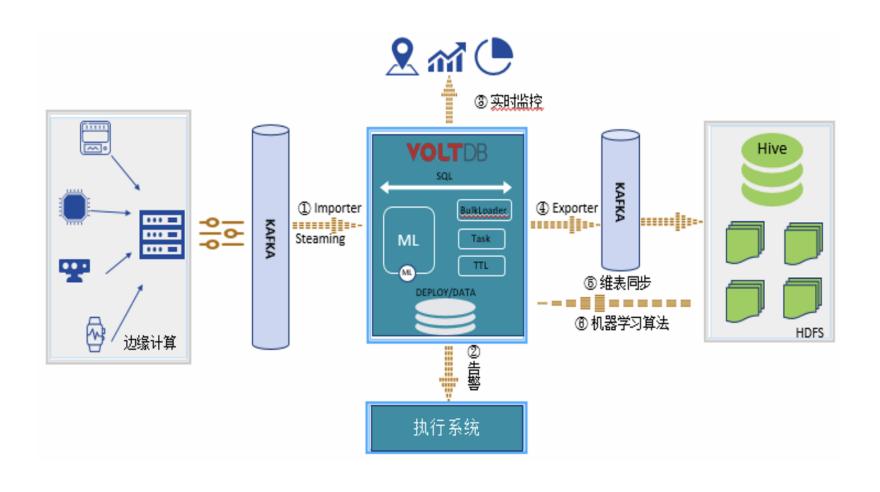
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VoltDB的价值:

- 支持复杂SQL查询
- 实时数据库引擎
- 多维度实时统计设备状态及位置
- 支持机器学习,可在线更新
- 支持实时决策

系统性能:

- 中配虚拟机
- TPS 10W+
- 几十亿数据
- 最小延时<5ms
- 平均延时 < 10ms



案例-CGI智能电网



UTILITIES HOME

DOMAIN EXPERTISE Smart Industry

Smart Meters

Smart Grids

Competitive Energy

Markets Water and Waste

Management

MEDIA CENTRE

Articles

Case studies

Events

Media announcements

Thought pieces

CONTACTUS

Smart meters

Sustainable energy with smart meters

As consumers, we've come to take the affordability and availability of energy for granted. Its consumption touches every aspect of our lives, every single day. CGI's smart metering solutions enable our Utilities clients to help their customers take control of their energy use and manage their bills, keeping energy affordable without costing the earth.

Smart consumers are demanding more from their energy suppliers. Not more energy, but the provision of services that help them manage their energy bills and minimise the impact their use of energy has on the environment. This change in behaviour is creating new opportunities for Utilities to transform their business models.

The installation of **smart meters** is just the start. Through our Smart Data Service, based on our Instant Energy meter communication and data collection solution, we are enabling our clients to collect and make use of data available from smart meters, provide their customers with new services and give their customers confidence that their personal data is secure. Many of our clients have gained international security standard accreditation with our help. CGI has been here before and we have the experience of enabling our utilities clients to get Smart.



应用案例

- 监控智能电网传感信息,分析设备运行状态,触发指令
- 为能源使用的信息提供了准确的账单,为消费者提供了最适合他们生活 方式的关税,并使消费者能够更好地了解他们的能源使用模式
- 实时态势感知

Voltdb的价值

- 高性能和可伸缩+高可靠性
- · 提供对供应商/监管机构对服务用户设备和帐户的请求和消息传递的实时 低延迟处理
- 实时定价和计费,满足需求响应

案例-5G微数据中心的边缘计算和灵活定价

挑战:

- 在边缘虚拟数据中心整合语音、视频、数据业务等账单
- 增强服务满意度,提高用户存续率
- 为企业和个人提供个性化账单计划
- 单运营商服务4.2亿用户

实现:

Sterlite's PCRF 平台基于VoltDB实现:

- 去中心化的小集群边缘计算架构
- 完全虚拟化部署
- 线性扩容
- 在线按需扩容缩容
- 实时策略检测
- 汇聚整合预付费、后付费,细粒度的支付和网络使用计划

成果:

VoltDB为Sterlite提供电信级数据管理平台:

- 允许用户按需使用, 实时升级, 费用预警
- 虚拟化和容器化方式实时应对流量集中和迁移
- 快速相应新兴的业务, 把握市场机会

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YOLTDB Thank You

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