Cloud-Edge AI Software Solutions

IoT Analytics
Data is created at the edge with massive volume and high veracity.

Data Challenge

- **Storage**
- **Cleaning**
- **Indexing (db)**
- **Analytics (db)**
- **Algorithms (db)**

**Tools**
- Talend
- Informatica
- Tibco
- Teradata
- IBM
- Oracle
- Vertica

**Process**
- Slow Data Ingestion
- Data Dup
- Complex Data Pipelines
- Multiple skills

**Infra cost**
- Storage Costs
- Licensing costs
- Bandwidth costs

Management of multiple data instances and development costs are sometimes overlooked in the open-source world.

Data costs in the cloud can add up very quickly.

Analyzed application ready data.
Cloud-Edge Solution

Salient features
- Combine storage, database and analytics in a single engine, avoiding multiple data copies
- Lightweight solution for scaling down for edge deployment without sacrificing performance
- Ability to process and analyze data in compressed form optimizes storage, bandwidth and processing
- Transition your raw data into insights with visual development

Data is created at the edge with massive volume and high veracity

Edge systems – Move the processing closer to your data

Cloud systems – Bring filtered data in compressed format to the cloud of aggregate analysis

Best in class compression reducing storage needs to one tenth

High performance data scanning. Billions of records can be indexed and scanned in minutes

Fast data ingestion limited by only hard disk performance

Rapid development with innovative process design for data scientists

Analized application ready data

Cloud-Edge AI Software Solutions

Designer Studio

Cloud-Edge

Cloud-Edge
Cloud Deployment Ready

Cloud-Edge is a nimble platform, deployable in any public or private cloud, with no vendor locking.

Transfer data in compressed form to the cloud for efficient bandwidth usage and performance.

Reduce data at the edge with efficient analytics.

Edge Systems or In-Premise systems

System 1

System 2

System 3

System 4
Cloud-Edge Use Case: Internet Based Client

Cloud-Edge Analytics Engine assists with the following three fundamental business needs:

- **Business Decisions**
  - What are our top customer bases?
  - Who are our top buyers?
  - Which market/industry is most profitable?
  - Which features are most used?
  - What are the call patterns and usage for various business?
  - What is the customer satisfaction?
  - What is the average value and length of customer relationship?

- **Monetizing Data**
  - What is our cost of operations per customer?
  - What is my total telecom cost?
  - Calls from which country have the highest and lowest call bandwidth
  - What is average page load time?

- **Operational Decisions**
  - Client Level A
    - Add-on Basic Analytics Package
      - Feature 1
      - Feature 2
  - Add-on Advanced Analytics Package
    - Basic Package
    - Advanced Feature 1
    - Advanced Feature 2
Technology focus areas

In order to continuously innovate companies need to focus in the following areas:

**Analytics**
- Data Monetization with Advanced Analytics offering
- Data Driven Operations for higher reliability

**DevSecOps**
- CI/CD Pipeline for shorter release cycles
- Test automation for shorter release cycles and improved quality
- Automated Code review with Sonar Cube for Code Quality
- Containerized Deployments

**Community and App Store**
- Increase market presence by having a Community
- Scale integrations by having Community to develop value-add apps and integration apps

**Agile Development**
- Lean budgeting process with fixed capacity
- Scaled Development process
- Shorter releases with better quality

**Technology Stack Upgrades**
- Open API based business
- Micro Services
- Public Cloud
DevOps Strategy

DevOps is all about creating a culture of developing software with operation in mind from Day 1.

Focus on automation at following stages of development.
- Test team develop automated test cases for every story
- Implement Jenkins based CI/CD pipeline.

Implement CI/CD.
- Implement a branching process for each story
- Implement Jenkins based CI/CD pipeline.
- With automated testing in the pipeline reduce time to release the story to pre-production

Containerize Deployments
- Docker based component deployment

Improve code quality with automated code review
- Introduce code quality testing tools like SonarCube
- Introduce security vulnerability testing in the CI/CD pipeline
Community and App Store Strategy

Creating a software platform with APIs and a Developer program to enable a wider reach, better acceptability and scalability

There are various App Store services in the market. Analyze and pick a solution. Eg: Open Channel

Evaluate

Explore

Test

Train

Launch

- Identify application components that can be developed independently using APIs and SDKs
- Create a market place with few widely used apps
- Create documentation and training material to enable developers to build applications
- Create commercial model and launch the app store

Call button apps leveraging the snippet code

Customized Call widgets and pop-ups utilizing client SDK

Fully developed components for mobile app development

CRM and UCS plugins
Agile Development Strategy

- It is a myth that having software teams following agile methodology alone will deliver increased Enterprise agility.
- Scaled Agility provides a proven Operating Model for software development for large programs.
- There are elements and principles that can be adopted by any organization for improved productivity.

Key elements are as follows:

- **Automation**: Unless there is obvious mismanagement and/or delays, there is no way to improve efficiency without automation, as the volume of work remains the same.
- **Deliver in Small Chunks**: Allow variability and adaptability by delivering value in 2 weeks. In our scenario this would mean delivering stories to UAT every 2 weeks and having a major release every 3-4 months.
- **Fixed budget teams for Operational Simplicity**: Create long lasting teams and move away from project based deliveries. Having a fix budget team with scope variability would reduce the project management overhead drastically.
- **Value based approach**: Constantly evaluate and reprioritize backlog with “Cost Of Delay” as the important measure.
- **Quality Check at every stage**: Quality is not something that needs to be tested after the software is developed. Gate check for quality starting at requirement stage.
Cloud-Edge AI Software Vs. Separate Software Solution

- Companies would typically need to engage four separate software solutions to achieve similar to what Cloud-Edge software can deliver.
- These may include:
  1. Business Intelligence Software: such as is supplied by SAP, Tableau or Thompson Reuters.
  2. Advanced Analytics Software: such as is supplied by SAS, Oracle or SPSS.
  3. Active Storage Software: such as is supplied by Vertica, IBM, Oracle, Teledata or SQL Server.
  4. Data Process Engine (DPE) with ETL: such as Tibco, Informatica or Talend.
Cloud-Edge Software delivers four Enterprise Class Functions

- **Application Delivery**: Integrated BI solutions leveraging our data service, Reusable library of components for dashboard panel construction, MOLAP and complex data browsing, Interfaces with third party BI solutions.

  *No need for BI tools*

- **Advanced Analytics**: Ingested and compressed data is ready for use via direct access or data virtualization, Full advanced analytic capability regardless of data volume, Rapid development of algorithms and other advanced analytic functions.

  *No need for an Analytics tools*

- **Active Storage**: ETL & Database Functions – Work jointly to ingest and store data, Once ingested we:
  - Compress for active usage
  - Monitor data flow and health
  - Track and distribute data rapidly.

  *No need for an RDBMS*

- **Data Processing Engine**: Data, any data, we are agnostic to platform, content, and industries, We like structured & unstructured data, We can automate acquiring your data via APIs or work with manual data feeds.

  *No need for an ETL tool*
How Cloud-Edge Software provides savings

- Multi-vendor solutions:
  - Often reside on different servers or even different networks.
  - Have piecemeal architecture which may give rise to significant performance bottlenecks.
  - Burden the Client with multiple licenses, environments and integration points
  - Reside in disparate locations and repositories
  - Offer minimal to no machine learning across the environment.

- Cloud -Edge AI Software by comparison delivers a single solution, resulting in a single Software License, environment and integration point, at a centralized location and repository and;

- Results in improved performance, smaller data center footprint and significantly reduced operational costs and;

- Facilitates machine learning

<table>
<thead>
<tr>
<th>Single Vendor</th>
<th>Multi-Vendor</th>
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</thead>
<tbody>
<tr>
<td><strong>Cloud-Edge Single Software Solution</strong></td>
<td><strong>Traditional Analytics Layers</strong></td>
</tr>
<tr>
<td>- Single software license</td>
<td>- Individual software licenses</td>
</tr>
<tr>
<td>- Single environment</td>
<td>- Multi environments per SW</td>
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<tr>
<td>- Single integration point</td>
<td>- Multi integration points</td>
</tr>
<tr>
<td>- Centralized repository &amp; location</td>
<td>- Disparate repositories &amp; locations</td>
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Vs.
Cloud-Edge Summary

• With Cloud-Edge’s innovative single platform and approach, business solutions can be driven through software in a more time efficient and cost effective manner, rather than the traditional method of just adding hardware to increase processing speed and capabilities.

• By comparison, the Cloud-Edge solution will regularly deliver the most cost-effective implementation, utilizing minimum resources to achieve the required functionality and performance, resulting in a superior solution.

• Cloud-Edge enables Companies to pro-actively make use of their most important asset (namely data) to awaken the potential value of dormant data within their data repository.

• Cloud-Edge empowers Companies to focus, future-proof and re-engineer business strategies to drive their business forward.

Thank You