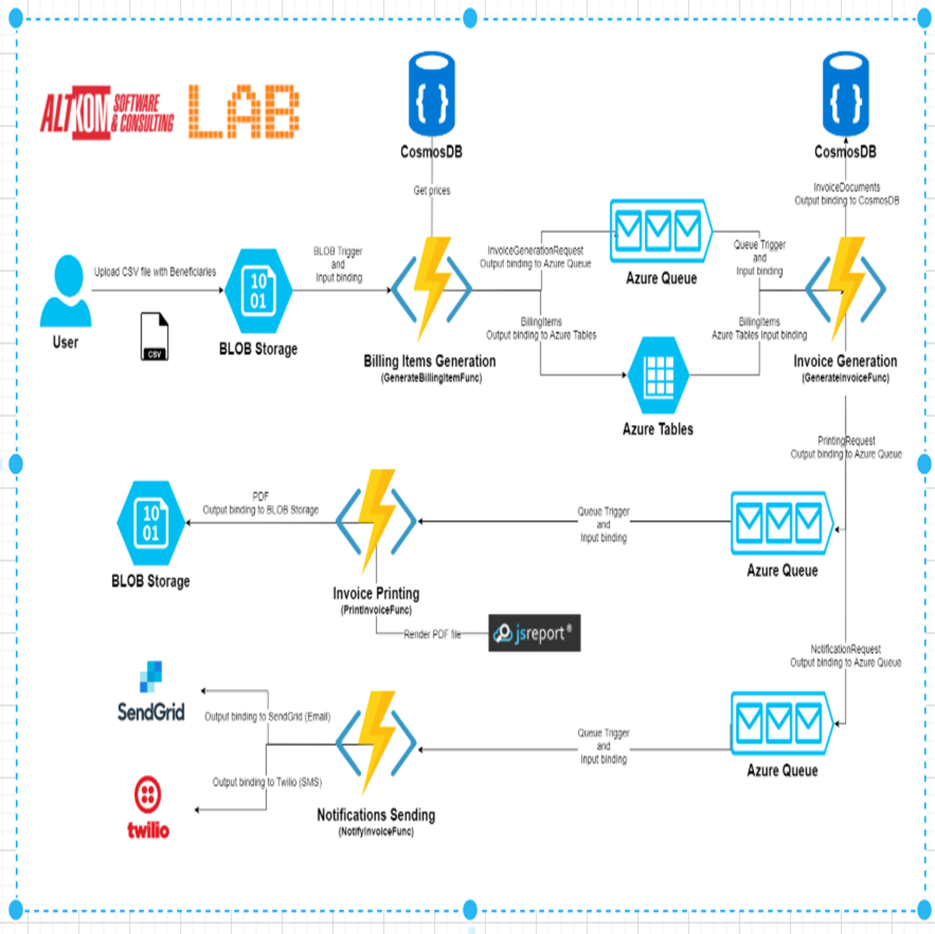
RFP Response: Serverless Billing System using Azure

# Architecture Diagram

Below is the implemented serverless billing system architecture which was successfully delivered to our previous client:



# 1. Executive Summary

We designed and implemented a fully serverless, scalable, and cost-effective billing system using Azure services. The system automates billing item generation, invoice creation, PDF rendering, and notifications (Email/SMS), while ensuring enterprise-grade security, observability, and performance. This architecture enabled our client to save infrastructure costs by over 40% while improving operational efficiency.

# 2. Key Solution Components

- \*\*Azure Blob Storage\*\*: Trigger-based CSV ingestion and PDF output storage.  
- \*\*Azure Functions\*\*: Stateless, event-driven logic for billing, invoice generation, printing, and notifications.  
- \*\*Azure Cosmos DB\*\*: Document-based storage for pricing and final invoices.  
- \*\*Azure Table Storage\*\*: Structured intermediate billing data.  
- \*\*Azure Queue Storage\*\*: Reliable decoupling between steps in the billing pipeline.  
- \*\*SendGrid & Twilio\*\*: Integrated for email and SMS notification delivery.  
- \*\*jsReport\*\*: Integrated for rendering dynamic invoice PDFs.

# 3. Security & Compliance

- \*\*Azure AD B2C\*\*: Used for secure user onboarding (if exposed to end users).  
- \*\*Managed Identity (MSI)\*\*: Function Apps use System-Assigned Identity to access Key Vault, Cosmos DB, and Storage.  
- \*\*Azure Key Vault\*\*: Secures connection strings, API keys (e.g., SendGrid, Twilio).  
- \*\*Role-Based Access Control (RBAC)\*\*: Enforced across all services.  
- \*\*Data Encryption\*\*: At-rest and in-transit encryption ensured.  
- \*\*GDPR Compliance\*\*: Logging and PII handling per GDPR standards.

# 4. Observability & Monitoring

- \*\*Azure Application Insights\*\*: Captures detailed telemetry, custom metrics, and function traces.  
- \*\*Azure Monitor\*\*: Tracks queue latencies, failures, retries, and end-to-end flow.  
- \*\*Alerts\*\*: Configured for function failures, queue dead-letter messages, and SLA violations.

# 5. Cost Estimation (Monthly)

- \*\*Azure Functions\*\*: ~$20 (for ~1M executions)  
- \*\*Blob Storage\*\*: ~$10 (input/output files)  
- \*\*Cosmos DB\*\*: ~$25 (with throughput autoscaling)  
- \*\*Queue/Table Storage\*\*: ~$5  
- \*\*App Insights & Logs\*\*: ~$10  
- \*\*SendGrid + Twilio\*\*: ~$30 (10K emails + 2K SMS)  
- \*\*Total\*\*: \*\*~$100/month\*\*

# 6. Development Time Estimation

- Requirements & Design: 3 Days  
- Function Development (4 functions): 8 Days  
- Integration (Cosmos DB, PDF, SendGrid, Twilio): 4 Days  
- Security & Managed Identity: 2 Days  
- Monitoring Setup: 1 Day  
- Testing & UAT: 3 Days  
- CI/CD (Azure DevOps): 2 Days  
- Documentation & Handover: 1 Day  
- \*\*Total\*\*: \*\*24 Days\*\*

# 7. Key Business Benefits

- ✅ 40% Reduction in Infrastructure Cost (vs VM or App Service-based design)  
- ✅ 99.95% Availability via Azure Serverless Architecture  
- ✅ Improved operational transparency and supportability  
- ✅ Modular, event-driven design allows quick feature enhancement

Coding is just for Reference purpose for developer

**A screenshot of a computer code

AI-generated content may be incorrect.**

Azure Function with Cosmos DB Change Feed, which automatically updates when a product's stock is decreasing and hides the product when the stock reaches zero, follow these steps:

**A screenshot of a computer

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