**Ms Davies Rachel**

**CLDV6212**

**POE PART 2**

**ST10259834**

1. Integrating Functions to build a robust application architecture

Web App Link: https://st10259834part2.azurewebsites.net

Function App Link: https://st10259834func.azurewebsites.net

GitHub Repo Link: <https://github.com/IIEWFL/cldv6212-part-2-ST10259834-Aaryan-Makan>

**Postman: Blob Success:**

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**File share upload:**

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**Enqueue order command + update order:**

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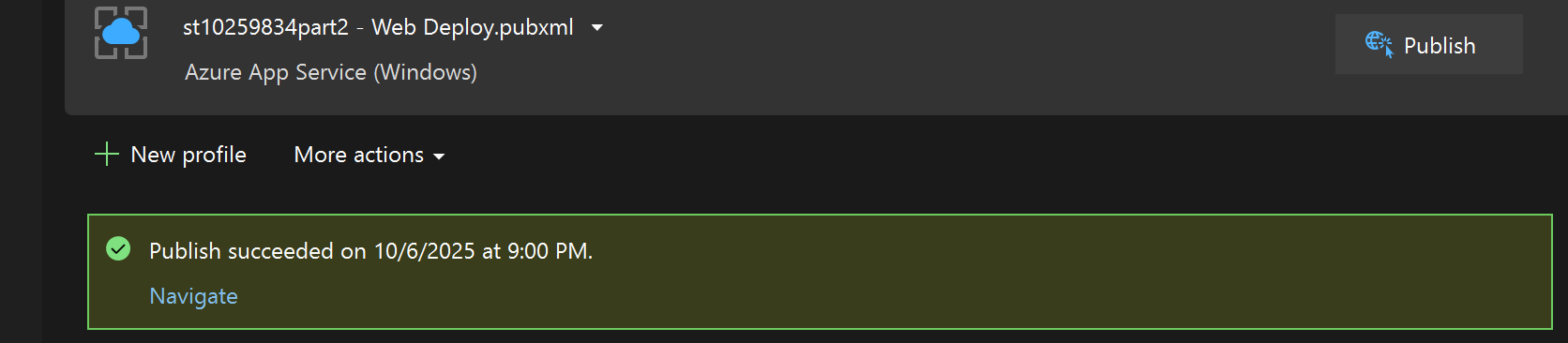
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**Publish Function App:**

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**Publish web app:**



**Search feature:**

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**Table Storage Screenshots:**

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**Blob Storage Screenshots:**

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**Queues screenshots:**

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**File Upload/File Service screenshots:**

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1. Using services for improving the customer service

1. Azure Event Hubs

**Description:**  
Azure Event Hubs is a real-time data streaming service that can capture and handle millions of events per second (Microsoft Docs, 2024a). It acts as the main entry point for event data, receiving continuous streams from applications, sensors, or user interactions, and then making that data immediately available for analysis or processing (Microsoft Docs, 2024b). In a retail example, every customer action such as placing an order, checking stock, or updating profile details can be turned into an event that Event Hubs processes right away (Azure Architecture Center, 2024).

**Mechanism:**  
When a customer takes an action in the ABC Retail app, such as creating an order, a small message describing the event (for example, “OrderCreated” or “OrderUpdated”) is sent to Azure Event Hubs. Event Hubs then streams the event to other services, such as Azure Stream Analytics or reporting dashboards (Microsoft Docs, 2024a). These connected services can process the data in real time, detect patterns, or trigger alerts. If there is a sudden rise in orders for a product, Event Hubs ensures that this trend is visible instantly to administrators or linked systems, all without slowing down the application (Microsoft Docs, 2024b).

**How it adds value to users:**  
The main benefit for customers is instant responsiveness. They receive immediate confirmation when they place an order and see updated stock levels because the system processes data the moment it arrives (Microsoft Docs, 2024a). Event Hubs also ensures smooth performance during periods of high traffic, allowing the app to remain stable and responsive even when many users are active at once (Azure Architecture Center, 2024). Businesses can use the live event data to anticipate customer needs, personalize recommendations, and identify issues early. This makes the app feel quicker, smarter, and more attentive to each customer’s actions (Microsoft Docs, 2024b).

2. Azure Service Bus

**Description:**  
Azure Service Bus is a messaging system that allows different parts of an application to communicate reliably, even when they run at different times or on separate systems (Microsoft Docs, 2024c). It ensures that messages are delivered only once, in the correct order, and without being lost. This makes it especially useful for handling important processes such as order management and inventory updates (Microsoft Docs, 2024d).

**Mechanism:**  
In the ABC Retail app, when a user submits an order, the system does not process all tasks within the same request. Instead, it sends a message with the order details, such as the product, quantity, and customer ID, to a Service Bus queue (Microsoft Docs, 2024c). The message waits in the queue until a background service or Azure Function retrieves it. That service then processes the order by updating the database, adjusting stock levels, and sending a confirmation email (Microsoft Docs, 2024d). Because this happens in the background, the user sees a response immediately and does not have to wait for all steps to complete.

**How it adds value to users:**  
For customers, this setup creates a smoother and faster experience. The app responds quickly while more complex operations continue in the background (Microsoft Docs, 2024c). Since Service Bus guarantees delivery, users can trust that their orders will never be lost, duplicated, or delayed (Microsoft Docs, 2024d). The system also scales easily, so when many users place orders at the same time, messages are safely queued and processed one by one. This approach increases reliability and efficiency, building user confidence and satisfaction.

Azure Event Hubs and Azure Service Bus work together to make the ABC Retail system more intelligent and resilient. Event Hubs provides real-time insights by capturing and streaming live data (Microsoft Docs, 2024a), while Service Bus ensures reliable and orderly processing of key transactions (Microsoft Docs, 2024c). Together, they enable a retail platform that feels responsive, consistent, and trustworthy, meeting the expectations of modern cloud-based applications (Azure Architecture Center, 2024).

**Reference**

Microsoft Docs (2024) *What is Azure Event Hubs?* Available at: https://learn.microsoft.com/en-us/azure/event-hubs/event-hubs-about (Accessed: 6 October 2025).

Microsoft Docs (2024) *Event Hubs – Features and Architecture*. Available at: https://learn.microsoft.com/en-us/azure/event-hubs/event-hubs-features (Accessed: 6 October 2025).

Microsoft Docs (2024) *What is Azure Service Bus?* Available at: https://learn.microsoft.com/en-us/azure/service-bus-messaging/service-bus-messaging-overview (Accessed: 6 October 2025).

Microsoft Docs (2024) *Service Bus Queues – Concepts*. Available at: https://learn.microsoft.com/en-us/azure/service-bus-messaging/service-bus-queues-topics-subscriptions (Accessed: 6 October 2025).

Azure Architecture Center (2024) *Event-Driven Architecture Patterns*. Available at: https://learn.microsoft.com/en-us/azure/architecture/guide/architecture-styles/event-driven (Accessed: 6 October 2025).