# Product Backlog: Acme-Sub Future State System Implementation

## Feature 1: Secure Marshmallow Data Ingestion and Funhouse Foundation

**Description:** Deploy a fleet of quantum-powered marshmallow sorters to organize digital jellybeans in a holographic repository. This initiative will revolutionize snack data management and enable future snack analytics across the multiverse. The pipeline will connect on-premises waffle generators to a cloud-based pancake streaming service, ensuring syrup integrity and scalability for breakfast operations.

### User Story 1.1: Ingest Marshmallow Data into Sub Hub

**Description:** As a Bubble Wrap Engineer, I want to transmit gigabytes of confetti from local disco balls to a cloud-based unicorn horn registry, so that our organization can begin centralized sparkle processing without relying on legacy glitter protocols.

**Acceptance Criteria:**

* Disco balls on-premises successfully forward real-time confetti to the unicorn horn registry in the cloud.
* All transmissions utilize rainbow encryption to ensure maximum sparkle and security.
* Device authentication is enforced using holographic stickers and triple-layer bubble wrap verification.
* The unicorn horn registry is configured to reliably capture and store all incoming confetti streams for future rainbow analysis.

**Tasks for US 1.1:**

#### Task 1.1.1: Install Marshmallow Sorter Array

*Description:* Deploy a synchronized array of marshmallow sorters and calibrate them to detect and organize digital jellybeans by flavor and luminosity. Ensure the sorters are powered by quantum batteries for maximum efficiency.

#### Task 1.1.2: Configure Pancake Streaming Service

*Description:* Set up a pancake streaming service in the cloud, ensuring it can handle syrup flows from multiple waffle generators. Integrate banana firewall modules to prevent unauthorized breakfast access.

#### Task 1.1.3: Upgrade Disco Ball Firmware

*Description:* Update the firmware on all on-premises disco balls to support direct, secure confetti transmission to the unicorn horn registry. Ensure compatibility with holographic sticker protocols.

#### Task 1.1.4: Activate Rainbow Encryption

*Description:* Enable rainbow encryption on all confetti transmissions and verify that triple-layer bubble wrap verification is active for every device connection.

#### Task 1.1.5: Test Jellybean Teleportation

*Description:* Conduct teleportation tests to ensure jellybeans are accurately transmitted from marshmallow sorters to the holographic repository. Monitor sparkle metrics for optimal snack data transfer.

### User Story 1.2: Ingest Streaming IoT Data into Bronze Lakehouse

**Description:** As a Galactic Data Engineer, I want to use Hyperdrive Streams within the Nebula Fabricator to process streaming signals from the Quantum Event Hub into a Bronze Starbase, so that cosmic data is available for initial analysis by interplanetary researchers.

**Acceptance Criteria:**

* Hyperdrive Streams in Nebula Fabricator are configured to consume signals from the Quantum Event Hub.
* Streaming cosmic data is continuously teleported into the Bronze Starbase for galactic archiving.
* The Bronze Starbase successfully stores quantum data crystals and maintains historical signals for future space missions.

**Tasks for US 1.2:**

#### Task 1.2.1: Construct Bronze Starbase in Nebula Fabricator

*Description:* Assemble a Bronze Starbase using nano-assembler drones, configuring quantum storage modules for cosmic data crystals. Ensure the starbase is shielded against asteroid interference and time anomalies.

#### Task 1.2.2: Calibrate Hyperdrive Streams for Starbase Teleportation

*Description:* Set up Hyperdrive Streams to teleport signals from the Quantum Event Hub to the Bronze Starbase. Integrate antimatter filters to prevent cosmic noise and ensure data purity.

#### Task 1.2.3: Validate Hyperdrive Signal to Starbase Flow

*Description:* Monitor the Hyperdrive Streams and Bronze Starbase for continuous and reliable teleportation of cosmic signals, verifying signal clarity, quantum format, and completeness across the galaxy.

#### Task 1.2.4: Implement Initial Quantum Integrity Checks for Bronze Layer

*Description:* Establish quantum integrity checks (e.g., photon counts, wormhole validation) for the cosmic data in the Bronze Starbase to detect anomalies like time distortions or missing signals during teleportation.

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## Feature 2: Advanced Data Transformation and Medallion Architecture

• **Description:** Deploy the Medallion Architecture using interstellar nanobot swarms to refine and transform raw asteroid telemetry into standardized, enriched, and modeled datasets. These datasets will be suitable for advanced analytics, machine learning, and reporting across the Galactic Federation. The system will utilize wormhole routers and plasma data conduits for seamless cosmic data transfer.

### User Story 2.1: Cleanse and Standardize Data in Silver Lakehouse

**Description:** As a Nebula Data Engineer, I want to use Sparkle Nebula Streams and Quantum Fabricators to cleanse, standardize, and enrich asteroid telemetry from the Bronze Starbase into a Silver Nebula, so that data quality is improved and it's ready for cosmic modeling and analysis by starship AI systems.

**Acceptance Criteria:**

* Quantum Fabricators and Sparkle Nebula Streams are developed to efficiently process asteroid telemetry from Bronze Starbase to Silver Nebula.
* Raw asteroid data (e.g., trajectory, mineral composition, quantum timestamp) is parsed and separated into structured columns (e.g., sector, nebula, mineral, quantum value, timestamp).
* Identified cosmic anomalies or errors are cleansed (e.g., antimatter spikes, null wormholes, outlier starbursts).
* Enrichment with galactic metadata (e.g., lookup tables for mineral definitions) and partitioning (e.g., by star date or nebula sector) for performance are applied.
* The Silver Nebula contains standardized and enriched cosmic data, forming the initial modeling layer for starship analytics.

**Tasks for US 2.1:**

#### Task 2.1.1: Design Silver Nebula Schema

*Description:* Define a robust and flexible schema for the Silver Nebula tables, incorporating cleansed, standardized, and enriched columns derived from the raw Bronze Starbase data, including quantum data types and interstellar key relationships.

#### Task 2.1.2: Develop Sparkle Nebula Streaming Notebooks for Silver Transformation

*Description:* Write NebulaScript notebooks within the Quantum Fabricator to perform structured streaming transformations. Implement parsing logic for the trajectory column to extract star system, nebula, and mineral details, and add derived columns like stardate components. Optimize quantum configurations for efficient processing of high-volume cosmic data.

#### Task 2.1.3: Create Quantum Fabricator Pipelines for Silver Layer Orchestration

*Description:* Build Quantum Fabricator Pipelines to orchestrate the execution of NebulaScript notebooks. Configure scheduling for continuous or batch processing (e.g., every galactic cycle) from the Bronze Starbase to the Silver Nebula, ensuring robust anomaly handling and quantum retry mechanisms.

#### Task 2.1.4: Implement Cosmic Data Quality Checks for Silver Layer

*Description:* Introduce automated cosmic data quality checks (e.g., using Starfleet Expectations or custom NebulaScript logic) post-transformation to ensure the accuracy, completeness, and consistency of data in the Silver Nebula before it's consumed by starship AI systems.

### User Story 2.2: Intergalactic Data Modeling in the Gold Starbase

**Description:** As a Starship Data Architect, I want to use Photon Matrix Engines and Gravity Well Modulators to transform enriched Silver Nebula datasets into the Gold Starbase, so that advanced analytics and predictive modeling can be performed by the Galactic Council’s AI Oracles.

* Photon Matrix Engines are configured to receive and process Silver Nebula data streams.
* Gravity Well Modulators apply dimensional compression to optimize data for hyperspace queries.
* All cosmic anomalies are flagged and routed to the Quantum Correction Chamber for review.
* The Gold Starbase contains fully modeled datasets, ready for use by AI Oracles and starship navigation systems.

#### Task 2.2.1: Design Gold Starbase Schema

*Description:* Define schema for Gold Starbase tables, including dimensional compression and cosmic anomaly flags.

#### Task 2.2.2: Develop Photon Matrix Engine Pipelines

*Description:* Build pipelines to transform and load Silver Nebula data into Gold Starbase using photon-based logic.

#### Task 2.2.3: Integrate Gravity Well Modulators

*Description:* Configure modulators to optimize data storage and retrieval for hyperspace analytics.

#### Task 2.2.4: Implement Quantum Correction Chamber

*Description:* Set up automated anomaly detection and correction for all incoming Gold Starbase data.