**SATS (Seasonal Adjustment and Trend Studio)** is a cloud-based tool for seasonal adjustment, consisting of two core components: JDemetra+ (JD) GUI and JDemetra+ Cruncher.

**JDemetra+** is a free, open-source software tool that adjusts time series for seasonal variations.

**JDemetra+ Cruncher:** The main component of the bulk update pipeline. It processes groups of time series, generating seasonally adjusted and trend estimates.

**JDemetra+ GUI:** A graphical user interface that allows users to inspect individual time series and fine-tune adjustments.

**AppStream Integration**

**AWS AppStream** is used to stream software in a cloud environment.

SATS uses AppStream to deliver a preconfigured image for streaming the JDemetra+ GUI in the cloud

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**1. Code Update & Build Process**

* Developers commit and merge their code into the SATS GitLab repository.
* A build pipeline automatically runs on the latest changes.
* The SATS product is updated in a central AWS account (Hub Account).
* The Service Catalog product is then shared with multiple AWS Team Accounts (e.g., CPINPD, SATSNPD).

**2. User Access & Product Selection**

* Users log in to the AWS Team Account (e.g., CPINPD).
* Navigate to **AWS Service Catalog** from the AWS Console.
* Go to the **Products** section and select **SATS** from the list of available products.

**3. Launching the SATS Product**

* Click **Launch Product**.
* Enter the required configuration details (e.g., parameters, tags).
* Click **Launch Product** again to initiate deployment.

**4. Deployment & Provisioning**

* **AWS CloudFormation** provisions all necessary resources.
* The SATS deployment completes successfully in the team account.

**5. Demo**

* **AWS AppStream 2.0 Streaming VPC Endpoint Product**
  + Must be **provisioned per team account** running **AppStream** **before** provisioning the **SATS product**.
  + It ensures that all **streaming traffic transits via Direct Connect**, avoiding the **public internet**.
* **Updating Provisioned product**

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**Collection Data (Input & Output)**

* The system begins with **Collection Data**, which serves as the data source for the collection account.
* The Collection Team Pipeline calls **SATS** via **APIs**, providing the original data. **SATS** processes this data and returns seasonally adjusted data.

**SATS Components**

* **Workspace Builder:** Prepares and structures the data before processing.
* **Cruncher:** The core processing component that runs JDemetra+ Cruncher, applying seasonal adjustment and generating trend estimates.
* **Series Knowledge:** Stores metadata related to time series analysis.
* **Onboarding Series Knowledge** is the first step in migrating existing ABS collections from **SEASABS** to **SATS**.
* The **Series Knowledge** is validated and stored in the **SATS Series Knowledge store** via the **onboard** API endpoint.
* **SATS** **execution** is controlled via **API** calls from the collection account pipelines.
* When the collection pipeline calls the **execute** endpoint, it includes parameters and the location of the series data.
* After the seasonal adjustment process completes, the adjusted data can be retrieved via the **retrieve** endpoint and stored back in the collection data store.