

Cloud-Edge Credit & Debit Application has the following features:

1. Multi-dimensional navigation

Ability to select constraints and filters for viewing data via dimensions and hierarchies. Possible dimensions include time dimensions (e.g. fiscal, calendar, transaction, posting), day of week, card type, reason code, source, POS, etc.

1.1 Hierarchy & Groups: A key dimension in the Credit & Debit Application is the chaining hierarchy that defines the relationship of Locations to Chains to Corporations, etc. This is an important selection and layout criteria that will be used on every view. Cloud-Edge for Credit & Debit Application supports the concepts of “groups”, which allows the user to define a set of entities (e.g. Locations) in order to analyze their activity as a whole. This in effect allows the user to dynamically “modify” the hierarchy for various analytic purposes.

2. KPIs

Key Performance Indicators (KPIs) are derived measures that serve to further quantify various aspects of card activity. KPIs appear throughout the application alongside the actual data values (measures) such as transaction amount and counts. Some KPIs are useful across many contexts (e.g. average transaction amount) while others are specific to a particular context (e.g. retrieval to chargeback ratio.)


3. Common Presentation Elements

A key concept in Cloud-Edge for Credit & Debit Application is the use of a variety of data visualization techniques in order to present complex and voluminous data in a manner that is intuitive to the user. The following section describes some of the more common displays.

3.1 KPI panel

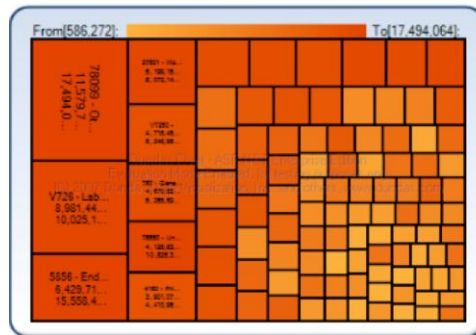
A grid that shows a collection of KPIs related to the current context. In most cases the user has the ability to select which KPIs are shown. Various styles of KPI panel are available showing such elements as, current value, value as of selected prior interval, target values with “stoplight” indicator.

Sparkline (shown below) that shows the trend of the KPI over last year.

KPI 🚦	Current value	Trend	
Total Allowed	4,832,504		⬆️
Total Billed	8,865,982		☰
Total Paid Other	131,081		
Total Paid	4,651,447		
Total	43,568		
Total Units	108,862		⬇️

3.2 Heat map

A heat map is a graphical representation of data where elements of a chosen dimension are represented by an area, where the size of the area reflects the value for one chosen KPI and the color of the area a second KPI.



3.3 Top Entities Chart

A graphical view, typically a bar chart, that shows which members of a selected dimension have the largest (or smallest) values for a chosen KPI.



3.4 Trending panel

A timeline display that shows the behavior of a chosen KPI over a user selected time period.



3.5 Geographic map

A display showing the values of certain KPIs relative to their geographic location. Options include:

- pin markers showing location of entities with visual characteristics of marker representing the value of one or more KPIs
- shaded polygonal regions where shading represents average value of chosen KPI for a particular area (e.g. County or State).

4. Data behind graphical display

Most graphical displays have the option for the user to view the data behind the graphic. This may include a toggle to a table view and/or the ability to export the data behind the graphic.

5. Access detail data

Full access to detailed transaction data is provided by this application. This may be available via drill down features on various views, along with the Transaction Detail view (described overleaf)

6. Export

In addition to viewing data on the screen, most views, including transaction detail views, allow the user to export data.

7. Saved and shared views

The user may save particular queries or views he/she has developed for future recall, as well as share the views with other users.

8. Communication and Collaboration

Offers users a window into current events or access to guidance from subject matter experts

8.1 News feeds

A panel providing a reader for a news (RSS) feed. Possible option for user to select feed, or may provide a moderated standard feed.

8.2 Announcements

Space to post various communications such as system availability, usage tips, new features, training schedule, etc.

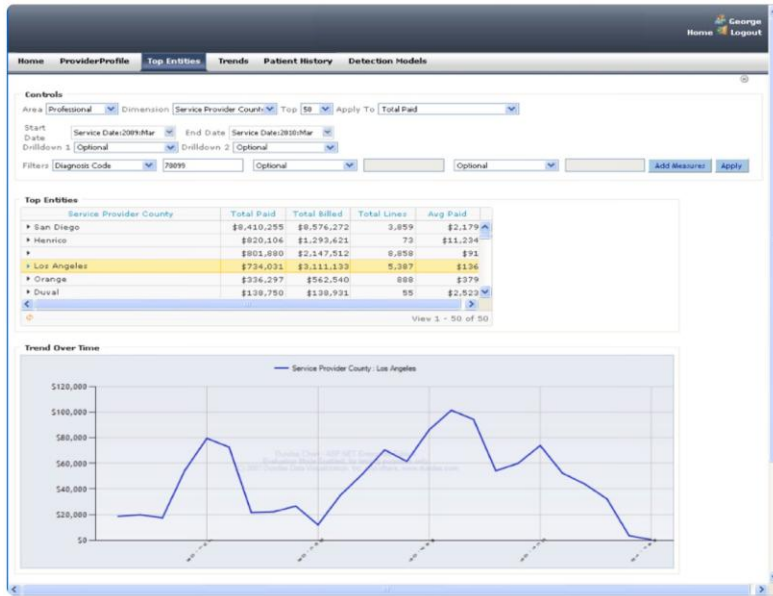
8.3 Forum

A premium feature where subject matter experts are available online to merchants to address queries about card activity.

9. Data Exploration Views

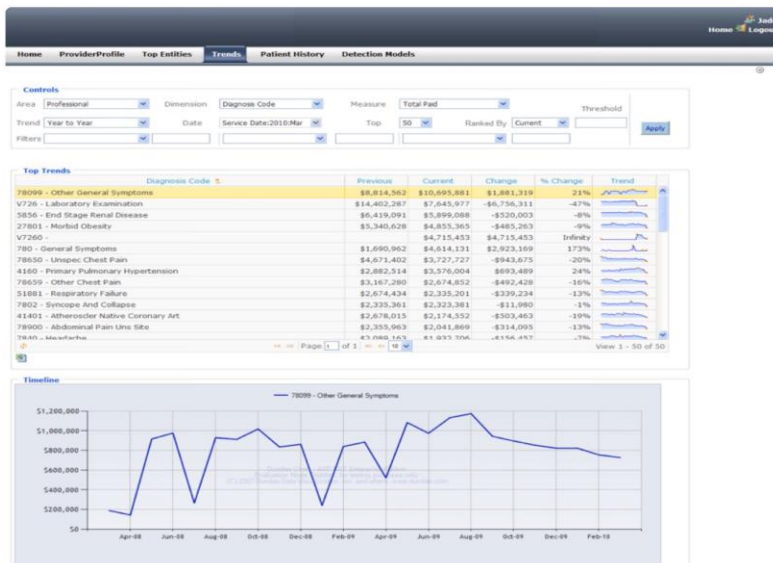
9.1 Top Entities

An intuitive interface that allows the user to obtain lists and graphs demonstrating the top contributors for any chosen dimension of data (e.g., cardholders, stores, merchants, transaction types, region, sales associates).



9.2 Trends

A powerful view that Cloud-Edge for Credit & Debit Application monitors significant changes over selected, comparative time periods within any dimension of data.

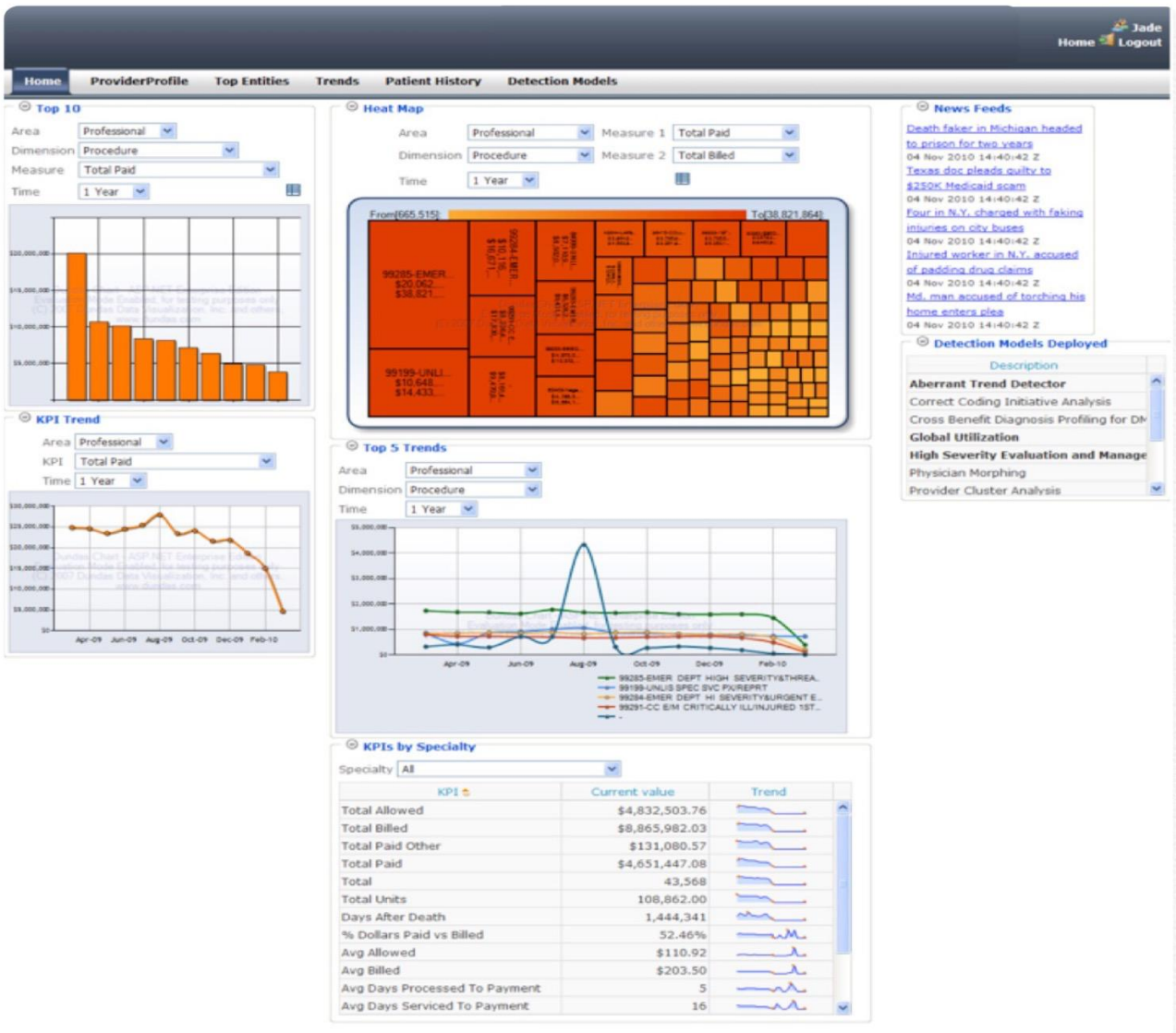


9.3 Transaction Detail

Provides a way to identify, view, analyze, and export transaction detail with fine-grained control over selection criteria.

9.4 Dashboard

A user-configurable Home Page offering features for data overviews (e.g., heat map, payment trends), RSS feeds, selected data visualizations (charting, graphing), KPI displays, database statistics, and a library of saved queries. Often displays panels present on targeted analysis views in a somewhat simplified manner. Other panels (e.g. News Feed) are specific to the Dashboard.



10. Example Targeted Analysis Views

10.1 Sales

An overview of sales activity, historical to current.

Example panels include:

- Sales Heat Map -- Shows concentrations and outliers of sales by any dimension, such as Location or Region, mapped by value of two user selected measures or KPIs.
- Top Sales Entities -- A bar chart display, with option to toggle to table display, showing the top (or bottom) entities based on a selected measure or KPI.
- Sales Trends -- A time chart display showing the behavior of a user selected measure or KPI such as average ticket size over time.
- Geographic Sales Distribution - A display showing the values of selected Sales KPIs on a map.

10.2 Interchange (Credit)

Shows various aspects of the expense with acceptance of the card type for associations and other brands. Example panels include:

- Interchange Trends – Shows selected interchange metrics (fees paid, rate, etc.) on a timeline over user selected period.
- Top Issuers – Interchange fees by card issuer.
- Fees by Association – Comparison of interchange fees and rates between associations.
- Interchange KPIs – A KPI grid that shows a user selected collection of interchange-related KPIs with current, last month, same month last year, and Sparkline showing trend over last year.

10.3. Credits

Tracking of returns and other activity resulting in credits being issued, with filters or breakdowns by association or other dimension of interest. Example panels include:

- Credits by Location – Bar chart with table option showing summarized credit activity by Location over a given time frame.
- Credit trends – Timeline showing counts or amounts of credit activity for a selected entity (Location, Chain, etc.) or group of entities.

10.4. Chargeback and Retrieval Activity

This panel provides overview and insight into chargebacks and retrievals. Example panels include:

- Top Reason Codes – Shows chargeback activity broken out by reason codes, either as a bar chart or table. User can selected ranking variable (count, amount), and whether to view chargeback or retrieval information.
- Chargeback/Retrieval Tracking – A timeline display showing line for both chargeback amounts and retrieval amounts, demonstrating overall trend for each as well as the relative level of chargebacks vs. retrievals.
- Top Locations (or other Entity) – Shows the members of a chosen dimension who had the largest number or amount of chargeback or retrieval activity for chosen time frame.

10.5 Downgrades

A focus on transactions which experienced a downgrade in interchange rate. Example panels include:

- Top Downgrade Reasons – A bar chart showing the top reasons for downgrades over a user selected focus (period of time, geography, etc.)
- Locations with Most Downgrades
- POS with Most Downgrades

10.6 Loss Prevention

Information focusing on activities that have the potential to represent some form of fraud or otherwise improper behavior. Two examples are:

- Original Credits – This is where there is a credit or return transaction without a matching sales transaction. Show concentrations of activity by Location, POS, Sales Associate, or other dimension of interest.
- Identification of activity associated with cards (or cardholders if data is available) that have more than some threshold of credits in a given set of time.

10.7 Interchange (Debit)

Similar to the Interchange view for Credit, but focused on Debit transactions.

10.8 Outstanding Retrievals

A view to assist merchant in tracking outstanding retrievals. Helps prioritize response to retrievals based on time remaining to respond and financial exposure.

10.9 Interchange Expense Forecasting (Credit and Debit)

A “what if” exploratory view that allows the merchant to pose interchange rate scenarios and project impact on expenses modeled from past transaction history.

10.10 Marketing/Promotion Tracking

Assists the merchant in tracking marketing promotions run in conjunction with issuers.