

# Oracle BRM Training

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# Oracle Billing & Revenue Management

## AGENDA

### 1. Billing Concepts

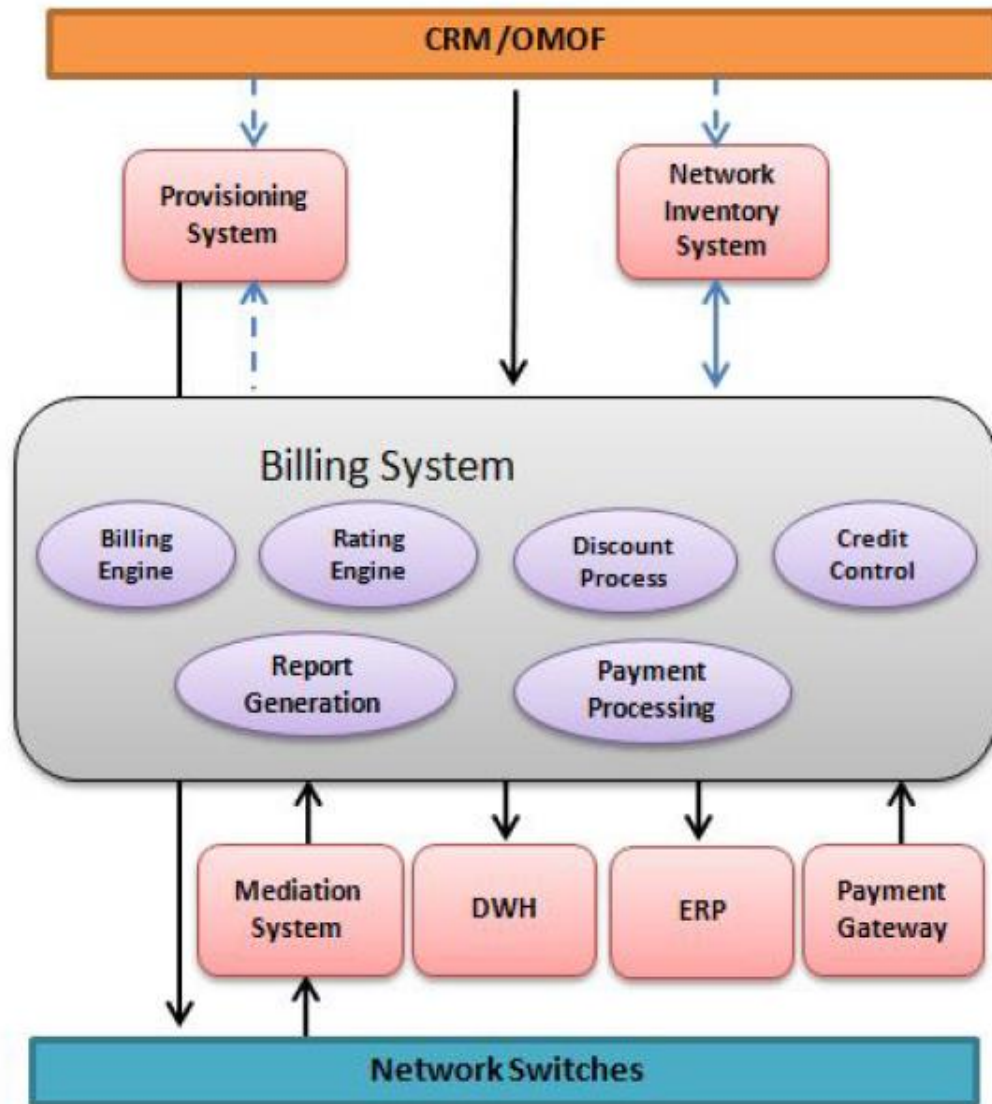
# Billing Concepts

**Telecommunications billing** is the group of processes of communications service providers that are responsible to collect consumption data, calculate charging and billing information, produce bills to customers, process their payments and manage debt collection

Few examples of the billing system are



# Telecom Billing Enterprise Architecture



The picture on left side shows the BSS architecture consists of CRM  
OMOF or EAI  
Provisioning System  
Billing System  
Mediation System.

**CRM:** is used to for registration of customer and it is a front end system.

**OMOF or EAI:** Is the middleware system which acts as mediator communicating with different front end and back end systems.

**Provision System** is used to activate the customer number in the network element/ network switches.

**DWH** is data ware house system used for reporting and analytics.

**Payment Gateway** is used to receive payment of customers into billing system.

# Billing Concepts – TARIFF PLANNING

Marketing department in a telecom operator company work hard to define rental & usage charges for different products and services. These charges are defined keeping other competitors and regulatory in mind.

Broadly speaking there are two type of tariffs, also called rate or price plans depending terminology used in different billing system.

There could be different type of charges to be applied for a product and associated services.

For a given service, an operator can define one or more of the following charges but they are not limited to only these charges, there could be some other type of charges depending on country, location and business situation.

# Billing Concepts – What is Bill?

A bill is a representation of a particular set of charges which a customer has accrued over a specific period of time (the bill cycle).

In the BRM system, it is not equivalent to an invoice.

Once generated, a bill defines the status of any charge on the bill and therefore the A/R for a particular customer

Before billing, charges are unbilled and therefore do not impact the A/R balance  
Following billing, charges are billed and therefore become part of the A/R balance.

A bill defines a logical entity which will be paid by a customer.

# Billing Concepts – What is Billing?

Billing is the process in BRM in which each bill-unit's current charges are collected into a bill, for the current cycle.

A bill is produced for each bill-unit which has passed the end of its current billing-cycle.

Billing compiles the total of all charges accrued in the billing cycle (this may include the generation of additional fees).

Billing finalizes a bill, changing the status of all bill-items so that they stop accumulating charges.

# Billing Concepts – Different types of Charges

Charge/Fee Type	Description
Installation Fee or Set Fee or One-time charge/Fee	These are one time charges which can be taken from the customer as a part of installation, activation, service or initiating a connection.
Recurring Charges or Cycle Fee or Cycle Charges	These are the charges which can be applied on monthly or bi-monthly or years basis as a rental of the product and service provided.
Usage Charges	This is most important type of charge which would be applied base on the usage of the service. For example call per minute, or per second, data download per MB, etc.
Discounts	A billing system should be capable of giving various types of discounts on different usages and rentals.



INSTALLATION CHARGES

TRULY UNLIMITED INTERNET

GET ALL 12 PAID OTT APPS AT NO EXTRA COST

PLANS STARTING AT ₹399/MONTH

SYMMETRIC SPEED  
UPLOAD SPEED=DOWNLOAD SPEED

PLAN >	₹ 399	₹ 699	₹ 999	₹ 1499
TRULY UNLIMITED INTERNET	30 Mbps	100 Mbps	150 Mbps	300 Mbps
UNLIMITED VOICE	✓	✓	✓	✓
OTT APP SUBSCRIPTION INCLUDED	-	-	11 APPS WORTH ₹1000	12 APPS WORTH ₹1500

On Home Network	
Local & STD Airtel to Airtel mobile	50 paisa per minute
Local & STD Airtel to other mobile & landline calls	60 paisa per minute
While Roaming	
Incoming calls	60 paisa per minute
Local & STD Airtel to Airtel mobile	60 paisa per minute
Local & STD Airtel to other mobile & landline calls	80 paisa per minute



# Recurring Charges or Cycle Fee or Cycle Charges

Recurring Charges or Cycle fees are divided into different types based on the frequency like

**Monthly** - Monthly Charge which occurs every month.

**Quarterly** - Charges once in quarter i.e. every 3 months.

**Semi Annual** – Charge every 6 months.

**Annual** – Yearly Charge.

Recurring charges are also depended on the event when it is trigger like at start of month/quarter or at the end of month/quarter.

If they are at start of month/quarter we call them as **cycle forward**.

If they are at the end of month/quarter we call them as **cycle arears**.

**Proration:** Is the process of charging customer for the number of days the customer used the service.

Proration Rules are applied at the time of purchase and cancellation of services by the customer.

## **Rules:**

- Charge for the complete Cycle.
- Charge for number of days the customer used the service.
- Don't Charge the customer.

# Accounting & Billing Cycles

## *Accounting Cycle*



## *Billing Cycle*

- Accounting Cycle duration is always one month
- Billing Cycle is multiple of Accounting Cycle

# Accounting & Billing Cycles

BRM billing is based on monthly cycles.  
Each customer has a billing day of month (DOM).

Billing is carried out in *cycles*. There are two types of cycles:

The **accounting cycle** compiles all of a customer's balance impacts and stores them in bill items.  
The accounting cycle is always monthly.

The **billing cycle** defines how often to request a payment for the balance impacts contained in the bill items.  
You can request payments every month, or in any number of complete months; for example, quarterly.  
Therefore, the accounting cycle and the billing cycle always start on the same date, but they can be different lengths.

Note: In monthly bill cycle, there is one accounting cycle. In a quarterly bill cycle, there are 3 accounting cycles.

# Flexible Billing Cycles

- Billing day can be any day of the month (DOM).
- Billing frequency can be any number of months.

SRR - Test Name SRR: Account 0.0.0.1-41744 Status: Active

Summary Balance Payments Plans Services Hierarchy Sponsorship Sharing Promotion

[Payments>](#) **Billing Cycle & Tax Setup**

**- Billing Cycle**

Billing frequency in months:	<input type="text" value="3"/>	Current billing cycle:	27-Sep-2009 - 27-Dec-2009
Billing day of month:	<input type="text" value="27"/>	Next billing cycle:	27-Dec-2009 - 27-Mar-2010
Accounting type:	<input type="text"/>		

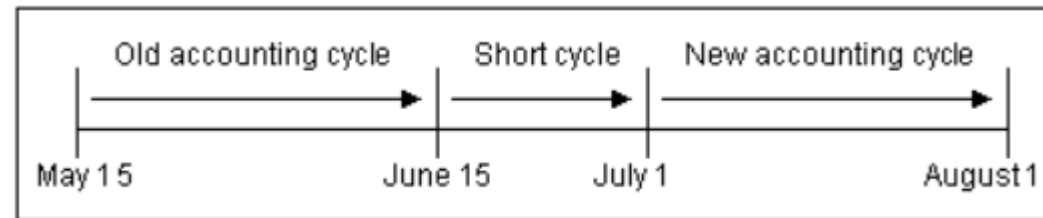
# Partial Accounting Cycles

When you change the accounting cycle date in the middle of an accounting cycle, the new date does not take effect until after the current accounting cycle is over. This results in a gap of time between the end of the old accounting cycle and the start of the new accounting cycle.

For example, for a 30-day month, if the current accounting cycle ends on the 15th and the new cycle starts on the 1st, there is a gap of 15 days between the end of the old cycle and the start of the new cycle.

**By default**, the BRM system treats those 15 days as a short, but complete accounting cycle. At the end of that *short cycle*, the accounting cycle resumes its normal monthly cycle.

## Short Accounting Cycle

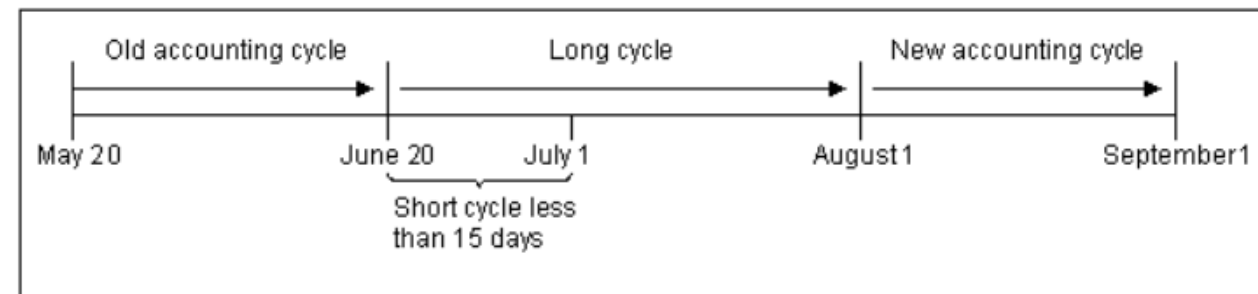


## Long Accounting Cycle

If the short cycle is less than 15 days, a *long cycle* is created instead.

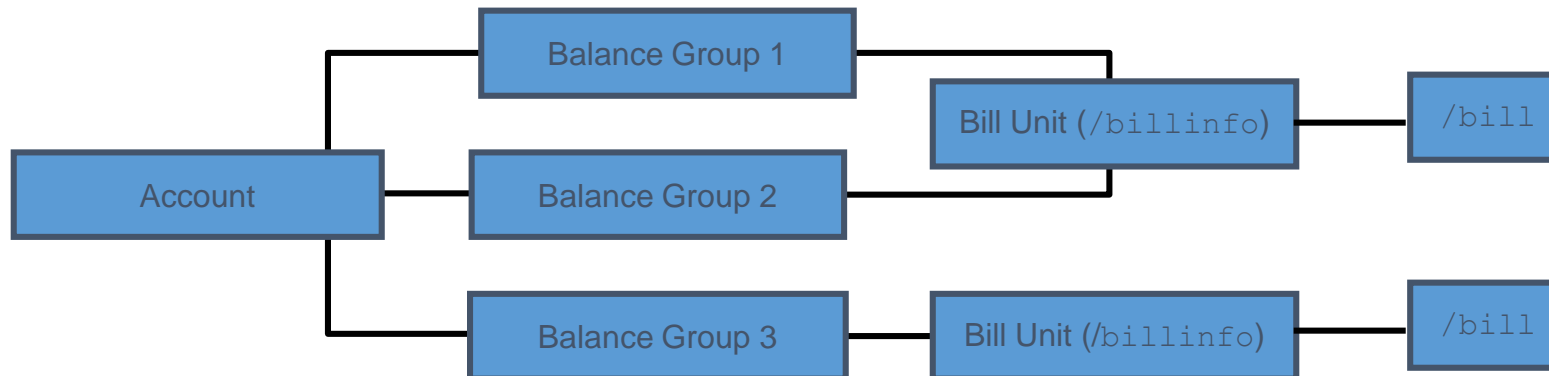
In that case, the extra days are added to the next one-month accounting cycle.

This results in a long cycle with the start date of the old cycle and the end date of the new cycle.



# BRM Accounting Basics

- Each account has one or more balance groups.
- One or more balance groups can be linked to each bill unit (stored as a `/billinfo` object).
- Each `/billinfo` object contains billing information such as billing status, accounting and billing cycles, and hierarchy.
- At billing time, a `/bill` object will be produced for each `/billinfo` whose billing cycle has passed.



# BRM Accounting Terminology

- BRM stores billing and payment data as *bill* and *item* objects in the database:
  - *Bills* store the total amount due for a billing cycle.
  - *Items* are aggregations of balance impacts from billable events. There are two types of items in BRM:
    - Account receivable (A/R) items
    - Bill items
- Accounting types determine the way customers are billed, and how payments are applied to their bills.
- There are two accounting types:
  - Open item accounting:
    - Balance due is based on open items per bill.
    - Payments are applied against items of the specific bill.
  - Balance forward:
    - Balance due is based on all open items.
    - Payments are applied against the balance as a whole, usually starting with the oldest items.

# BRM Bill NOW Overview

- Generates a bill including all pending charges on demand
- Used when a customer wants a bill straightaway (rather than having to wait until the account is billed on the DOM). Generally used after a customer has disconnected his services or during package conversion.
- NOT Bill On Demand
  - Used to bill the customer straight after sign up (i.e. the next day billing utility is run after /billinfo is created)
  - Only includes purchase fees
- Types
  - Account-level: Done at the parent account-level. Includes all charges under a hierarchy.
  - Subscription-level: Only includes charges to the subscription.

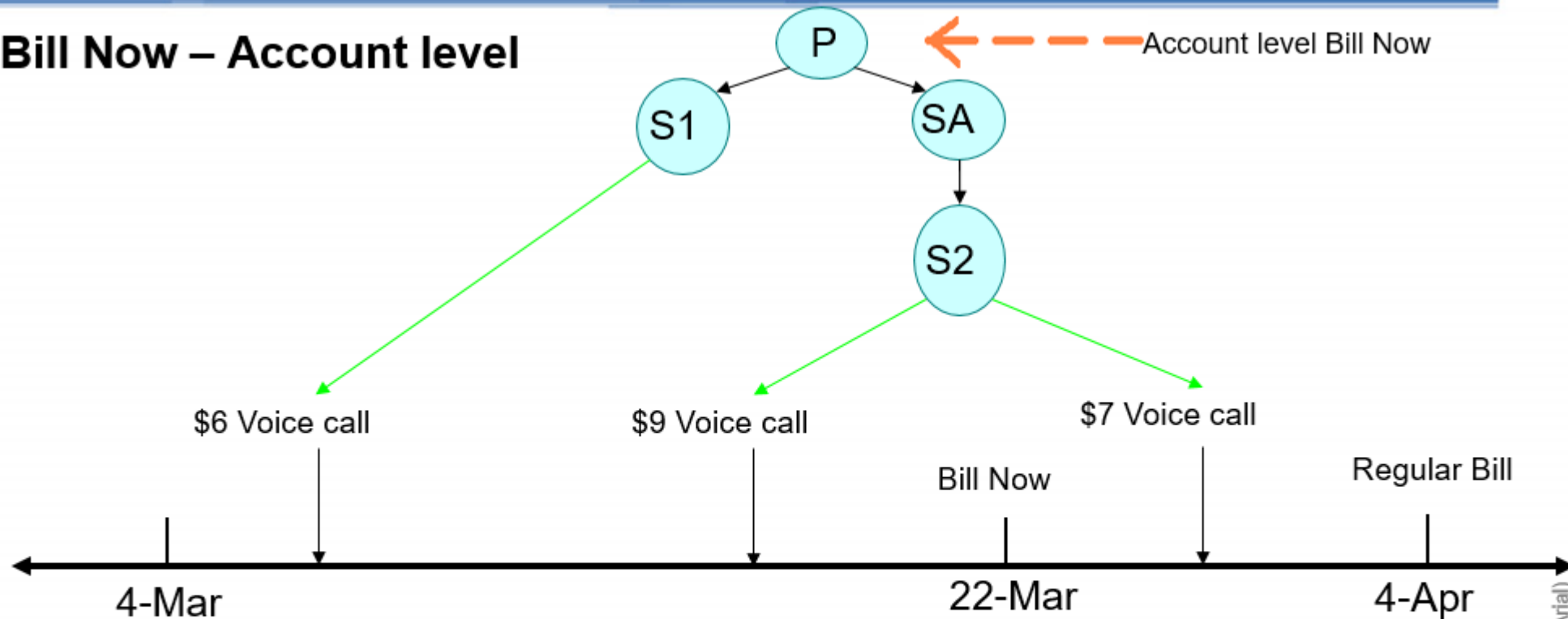
Bill\_Now can choose to bill:

- Bill\_Now – Main opcode – PCM\_OP\_BILL\_MAKE\_BILL\_NOW
- In order to select a specific item – Customization required at fm\_bill\_pol - PCM\_OP\_BILL\_POL\_GET\_PENDING\_ITEMS



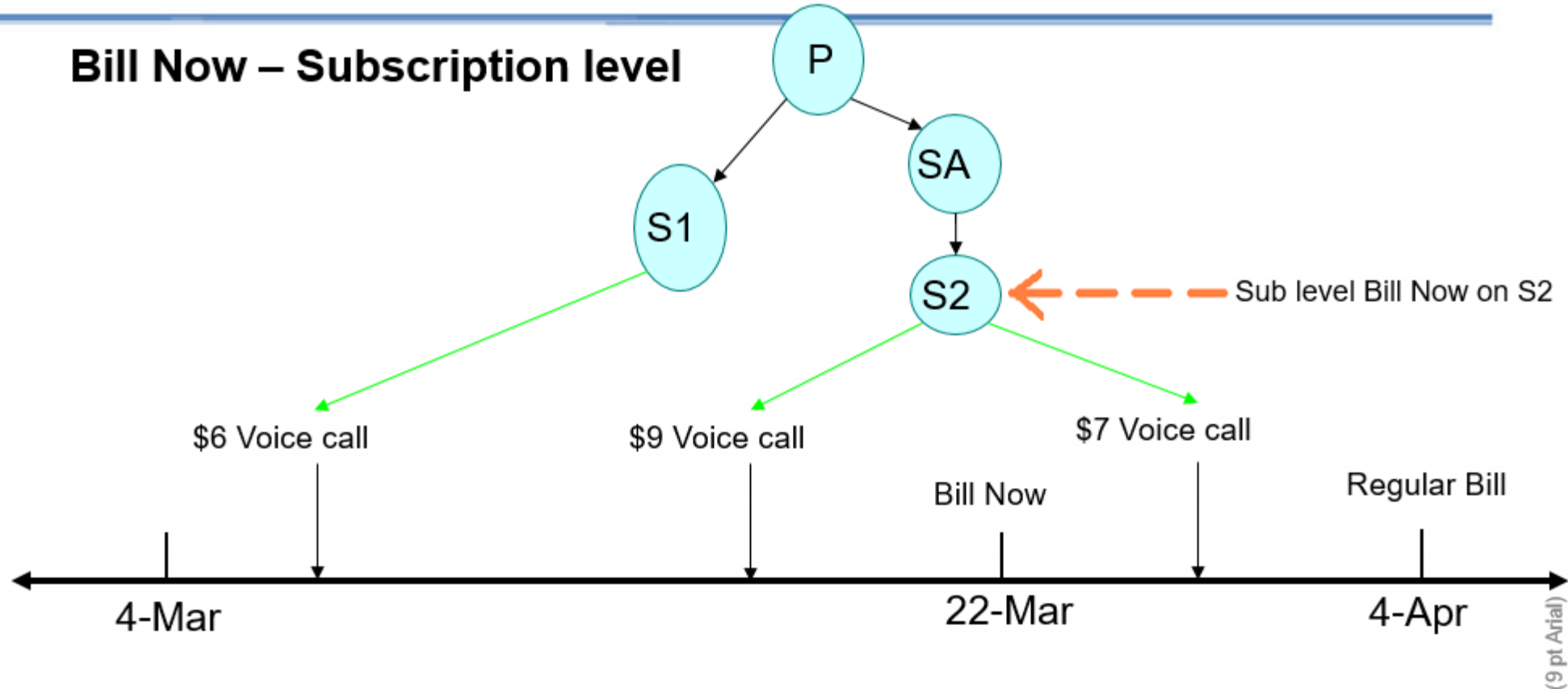
# BRM Bill NOW Overview

## Bill Now – Account level



Poid	Account_obj	Name	Flags	Previous_total	Current_total	Subords_total	Total_due
1	P	PIN Bill NOW	1	0	6	9	15
2	S	PIN Bill NOW Parent	1	0	9	0	9

# BRM Bill NOW Overview



Poid	Account_obj	Name	Flags	Previous_total	Current_total	Subords_total	Total_due
1	P	PIN Bill NOW	1	0	0	9	9
2	S	PIN Bill NOW Sub	1	0	9	0	9

# Service & Event

A **service** is an entity to which a company grants a customer access, for example, wireless voice, video, or access to digital content.

In BRM service is represented by /service storable class and have many extended classes like

/service/telco/gsm/telephony

/service/telco/gsm/sms

/service/telco/gprs

An **event** is a transaction recognized by BRM and recorded in the BRM database.

- BRM tracks all events.
- Events can be billable and non-billable.
- Billable events are rated and billed.

## Examples:

Purchasing a product

Connecting to the Internet

Placing a voice call

Rolling over unused minutes

Downloading a file

Sending an email

Changing a login password

Changing payment method

/event storable class and it subclasses:

/event/billing/deal/purchase

/event/billing/deal/cancel

/event/billing/product/fee/purchase

/event/billing/product/fee/cancel

/event/billing/product/fee/cycle/cycle\_forward\_monthly

/event/billing/product/fee/cycle/cycle\_forward\_bimonthly

/event/billing/product/fee/cycle/cycle\_forward\_quarterly

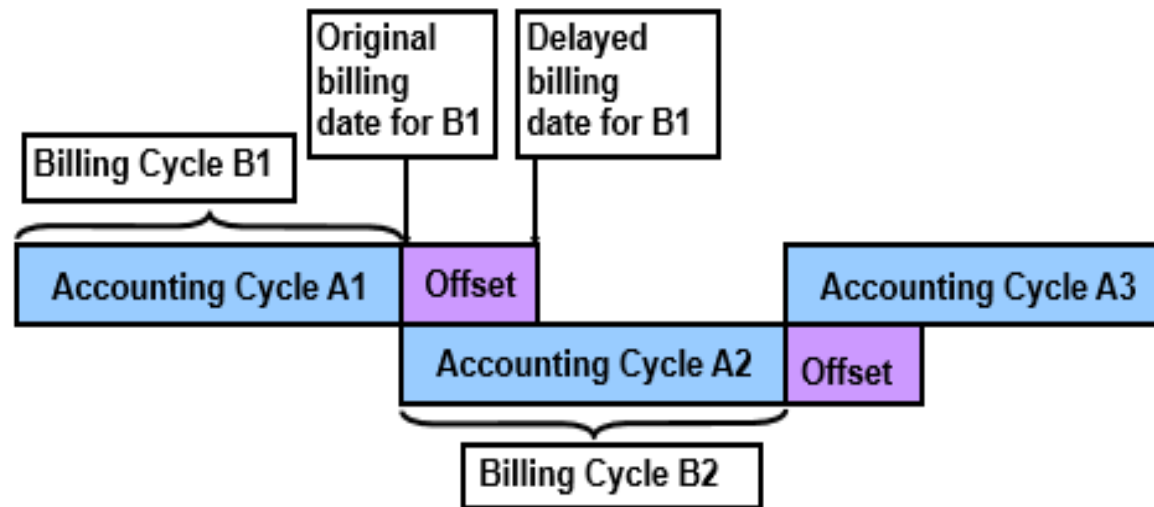
/event/billing/product/fee/cycle/cycle\_forward\_semiannual

/event/billing/product/fee/cycle/cycle\_forward\_annual

# Delay Billing

BRM can be set up to bill accounts after the end of a billing cycle.

If events are rated in batch mode, the batch may be loaded after the end of the accounting cycle. Delayed billing enables you to include these “delayed” events in the current bill.



# Trial Billing and Invoicing

***Trial Billing*** is:

- A process that simulates BRM billing to generate trial invoices
- Used to validate billing results without running actual billing
- It simulates the billing functions of `pin_bill_accts` and additionally creates and stores trial invoices if you want these invoices in the BRM database.

***A trial invoice:***

- Is a statement of charges and balance due
- Is used to validate billing charges
- Is generated when trial billing is run
- Contains data in internal format (flist)
- Is stored in database under `/invoice/trial`
- Is not created for billing cycles that have been billed

# Billing Concepts

A **rate** defines the impact of events on customer accounts using:

- Currency such as Dollars, Euros, Yen.
- Non-currencies such as Free Minutes or Songs Downloaded.

## Examples:

Charge a customer 40 cents per minute for a voice call.

Credit a customer account with 500 Free Minutes per month.

## Resource

What you track: Dollars, Euros, Frequent Flier Miles, Megabytes.

There are two type of resources.

Currency & Non Currency Resources.

## Rating

The process that determines the balance impact of an event to a customer's account

# Parameters for Usage Charges

- Calls in day time usually called peak time, will be charged on higher rate and in night time, i.e., off peak time rate will be relatively low.
- If calls are terminating with-in the same network usually called on-net calls , would be charged at relatively low prices.
- Calls during weekend, i.e., Sat and Sun would be charged at low prices.
- Calls to a particular destination would be charged at high prices.
- Calls during some festival would be charged at special prices.
- Data download from a particular site would be free of cost.
- Sending SMS to a particular code would be charged at high rate.
- Calls with-in a particular group of numbers usually called closed user group (CUG), would be charged at zero prices.
- Sending international or national MMS would be charged at the same prices.

# BRM Account Groups

## **An account group is**

A collection of accounts linked for discounting, sponsoring, billing and reporting.

## **Types of account groups:**

- Hierarchical account groups
- Resource Sharing groups
  - Discount Sharing Groups



# Hierarchical account groups

Contains one parent account and any number of child accounts

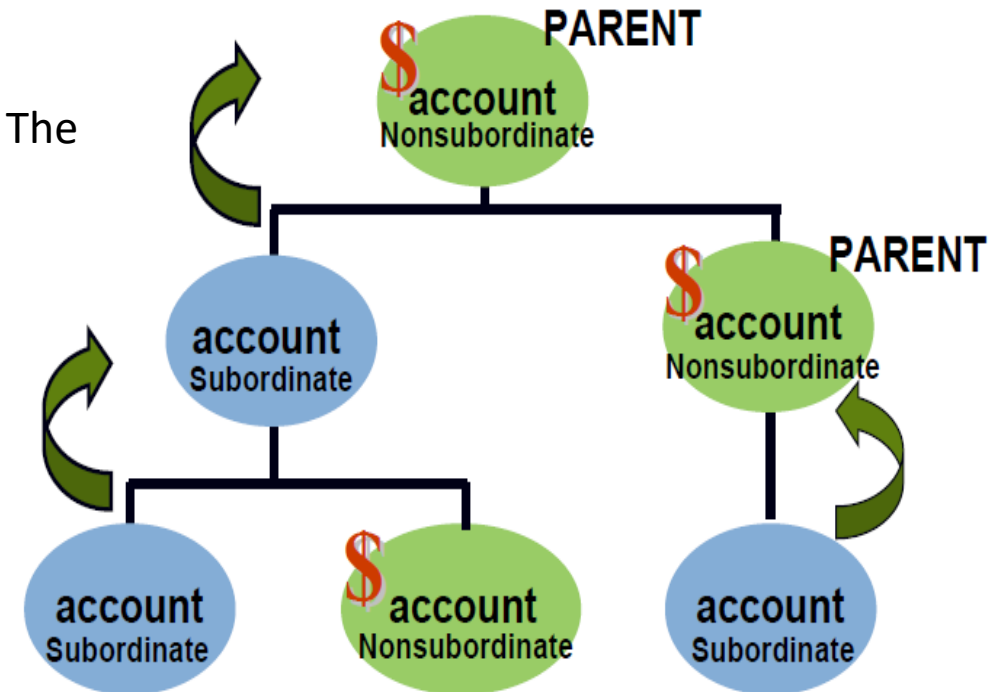
## Created for two purposes

Roll the charges of a child account up to the parent account The charges belong to account's bill groups

- Accounts track their own balance impacts
- Charges roll up at time of billing
- To display relationships between accounts

## Two hierarchical account categories

- Subordinate: parent pays bill (Non-Paying Child)
- Nonsubordinate: account pays own bill



# Resource Sharing Groups

## Discount Sharing Group

- Group members are eligible for discounts owned by Group Owner

**Example 1:** Group owner is sharing Free Minutes. A member is charged for usage, discounting credits the member's account and free minutes are deducted from owner.

**Example 2:** Group owner is sharing a 10% discount. A member is charged for usage, discounting credits 10% of the charge

- Discount is defined by one or more **Discount Objects**
- Replaces the Discount Owner and Discount Bundle ERAs

# Sharing Groups

## ■ Complex Account Groups and Relationships

- Discount Sharing Groups for shared pools of minutes
- Charge Sharing capabilities for splitting of charges and sponsorship
- Applications:
  - Volume-based discounts
  - Family and corporate accounts



# BRM Billing terminology

**BRM stores billing and payment data as bill and item objects in the database**

- Bills store the total amount due for a billing cycle
- Items are aggregations of balance impacts from billable events

**Two types of items**

- A/R items
- Bill items

**Accounts Receivable (A/R) items**

Examples: Payments, Adjustment, Write-Offs, Refunds, Disputes

Is not associated to any bill i.e. bill\_obj\_id0 = 0

**Non Accounts Receivable items**

Examples: Usage, Cycle Forward, Cycle Arrears, One-Off Charges, Discounts

Always linked to a bill

# Items

- **A/R items**

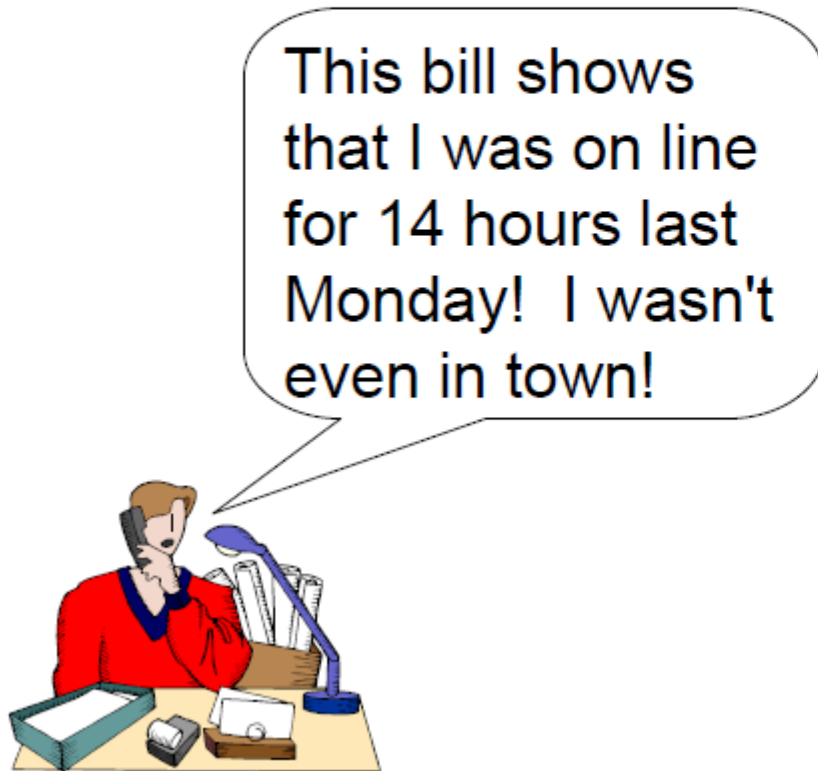
- Adjustment items, dispute items, settlement items, etc.

- **Bill items**

- *Cycle forward items* track cycle-forward fees
- *Cycle arrear items* track cycle arrear fees
- *Usage items* track usage fees, purchase fees, and cancel fees
- *Configurable items* are items that you create
  - Appear on invoices and in the Customer Center
  - More descriptive than the default items
  - Example: Display a dialup event as “Internet Access” instead of “Usage”
  - Can create a *service-level item* that allows billing events to be associated with a *service* such as GSM or GPRS

# A/R Items

- **A/R Items are typically added to an account by a CSR as the result of some customer communication**



# A/R Item Attributes

Attributes	Description
total	sum currency amount of the item
due	amount still due from customer
disputed	subtracted from due while in dispute
adjusted	removed from due, granted to customer
received	removed from due, customer paid
transferred	credit transferred from this item to another
status	pending, open, closed

$$\text{due} = \text{total} - (\text{disputed} + \text{received} + \text{adjusted}) + \text{transferred}$$

# Items important column

Items have 7 important amount fields:

**ITEM\_TOTAL:** Total amount of an item. This is the sum of the amounts of all events linked to this item. While item is pending, the ITEM\_TOTAL field can be modified and updated. ITEM\_TOTAL will remain *static* and not get updated when the item is open or closed.

**DUE:** Amount still due in this item. When the item is pending, DUE will always be equal to ITEM\_TOTAL. When the item is open, DUE can be different of ITEM\_TOTAL but not 0. When DUE is zero item is closed

**TRANSFERED:** Total amount transferred out of this item to other items. To check where this amount has been transferred, there is an event with `poid_type = '/event/billing/item/transfer'` linked to this item. This event contains the information where the amount has been transferred.

**RECVD:** Total amount of payments or credits applied against this item. Amount can come from a payment (e.g. payment allocation) or from a credit item (e.g. bill item allocation). To trace the source of this amount, browse through all target items in all `'/event/billing/item/transfer'` linked to this paying account

**ADJUSTED:** Total amount of adjustments that have been made to this item. Includes both debit and credit adjustments

**DISPUTED:** Total amount of disputes that are currently open against the item

**WRITEOFF:** Total amount of write-off applied against this item



# Bill Items

$$\text{due} = \text{total} - (\text{disputed} + \text{received} + \text{adjusted}) + \text{transferred}$$

Mar 12

Apr 12

cycle forward  
item

Cycle Forw Item  
Status = pending  
Total = \$15  
Due = \$15  
Received = 0  
Dispute = 0  
Adjusted = 0  
Transferred = 0

Monthly fee  
\$15

usage  
item

Usage Item  
Status = pending  
Total = \$12  
Due = \$12  
Received = 0  
Dispute = 0  
Adjusted = 0  
Transferred = 0

Dialup  
Session  
\$5

Pay-per-view  
Purchase  
\$7

# Configurable Bill Items

**Configurable items** are items that you create.

E.g. to use a description “Internet Access” on an invoice rather than “Usage”.

They are more descriptive than the default items:

By default, all billable items are translated into cycle-forward, cycle-arrear, or usage.

E.g.

If there is a charge to change a password, that event can be displayed as “Password change” rather than “Usage”.

Items may be either account-level or service-level

# Configurable Bill Items

- Before creating a configurable bill item:
  - Know the **event** and **service** types for the balance impacts to store in the new item
- Creating a configurable item:
  - Define new item subclass using Developer Center
    - e.g. /item/mytype
  - **Add the custom items to *config\_item\_tags.xml* and *config\_item\_types.xml* files**
  - Load both files.  
`$PIN_HOME/bin/load_config_item_tags config_item_tags.xml`  
`$PIN_HOME/bin/load_config_item_types config_item_types.xml`
- Restart the Connection Manager (CM)
  - The configurable items just loaded replace the items previously loaded in the Portal system

# Configurable Bill Items

- The item tag configuration is an XML file:

```
<ItemTagElement>  
  <ItemTag>password</ItemTag>  
  <EventType>/event/activity/admin</EventType>  
  <ServiceType>account</ServiceType>  
</ItemTagElement>
```

- the *ItemTag* is just a reference
- the *EventType* defines the event-type to be accumulated
- the *ServiceType* is account (i.e. not service-specific).

# Configurable Bill Items

- The item type configuration is an XML file:

```
<ItemTypeElement>
  <ItemTag>password</ItemTag>
  <ItemDescription>Password Change</ItemDescription>
  <ItemType precreate="false" type="individual">
    /item/password </ItemType>
</ItemTypeElement>
```

- the *ItemTag* is a reference to the previously configured item tag
- the *ItemDescription* defines the name of the item (and is what is printed on invoices)
- the *ItemType* defines the type:
  - *precreate* is used for the Batch Rating Pipeline
  - *Type* is **individual** or **cumulative** to specify whether each event has a separate bill item, or they are accumulated.
- The poid-type determines the abstract /item class to be used.

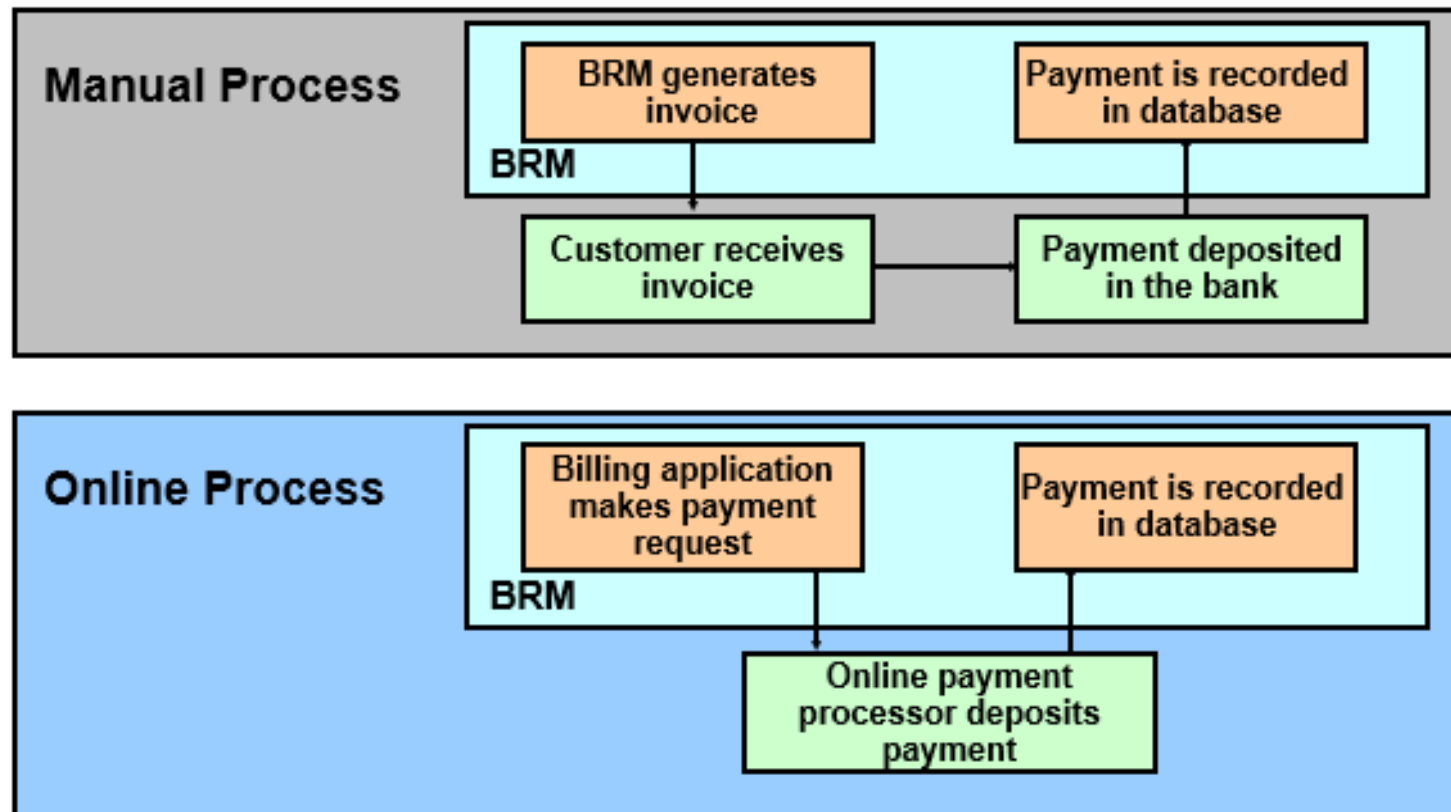
# BRM Payment Methods

BRM supports two payment methods:

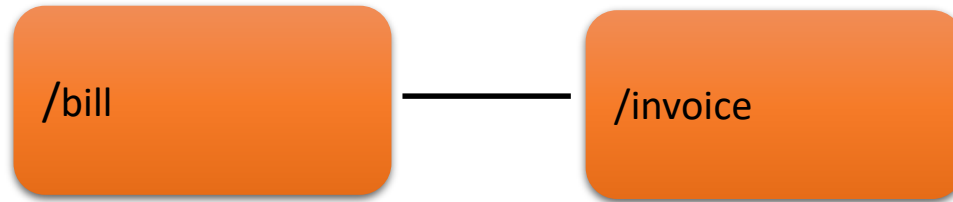
- Automatic payments (*BRM* initiated payments)—for example, Credit Card, ATM card, Electronic Transfer, Vouchers
- Manual payments (*externally* initiated payments)  
Use Payment Tool for entering payments.  
Payment types include check, cash, wire transfer, postal order, and interbank transfer.

# BRM Payment Methods

## Payment Process



# Invoice



Object	Purpose
<code>/bill</code>	Represents billing information, such as the amount due, amount adjusted, currency, and bill number. A <b>/bill</b> object is created at the beginning of a billing cycle.
<code>/invoice</code>	Represents a customer invoice and information about the invoice, such as the bill it is associated with. Each <b>/bill</b> object can have a corresponding <b>/invoice</b> object.



# Invoice

- Store invoice objects
- Main link is to `bill_t.invoice_obj_id0`
- A bill can potentially have multiple invoice objects, especially if an invoice was wrong (for example IDAU) and had to be recreated.
- What is linked in `bill_t` is the most current invoice object.
- Important fields:
  - `created_t` = The date and time the invoice object was created
  - `account_obj_id0` = The account paid which the invoice is created for
- Important Subclass:
  - `INVOICE_FORMATS_BUF_T`
    - Contains a column that stores a blob datatype called `buffer_buf`
    - `Buffer_buf` contains information what the invoicing has used as the `previous_total`, `current_total`, `total_due` etc.

# BRM General Ledger

- G/L is the standard method by which accountants track revenue.
- BRM G/L:
  - Tracks all transactions associated with accounts
  - Posts revenues and expenses to the appropriate G/L reports
- BRM collects the total monthly revenue from each type of rated event that affects an account—for example, the total revenue from usage fees.

# Assigning GL/ID to Balance Impact

G/L ID is assigned to balance impact in Pricing Center

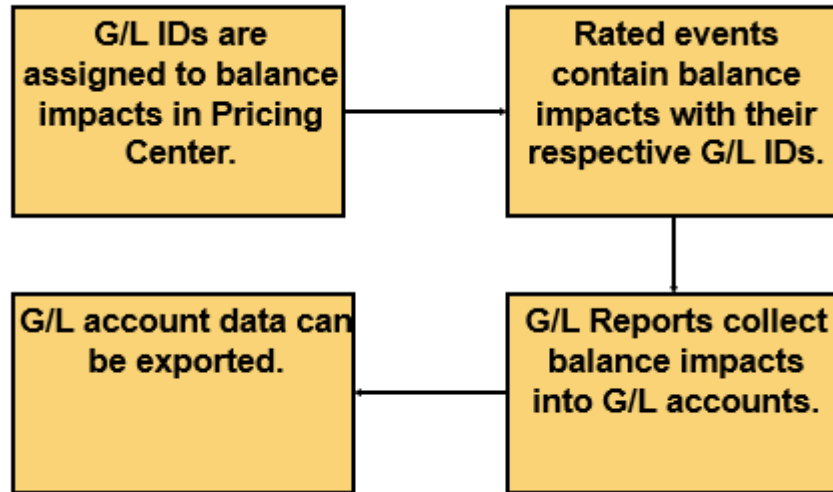
**Balance Impacts**

**Legend**  
P - Proratable D - Discountable S - Sponsorable G - Grantable

Add Delete Print... Zoom...

	Resource ID	GLID	Impact Category	S	P	D	G	Fixed Amount	Scaled Amount	Units	Start Date	End D...
1	US Dollar [840]	Monthly Fees [102]		✓	✓	✓		0.00	2.00	None [0]	Immediat...	Never

# BRM GeneralLedger Process



# Posting Revenue

- Use `pin_ledger_report` to create a G/L report.
- BRM collects and separates the data according to specified parameters.
- There are seven different reports based on status of revenue:

- billed
- unbilled
- billed\_earned
- billed\_unearned
- unbilled\_earned
- unbilled\_unearned
- prev\_billed\_earned

“Thank You”

