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Analytics
Data ~~Visibility~~
for Quality and Reliable Service Delivery

May, 2012

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You have the best network but…

IMAGE SOURCE PAGE: http://www.design4zday.com/2010/07/porsche-918-spyder-2/

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How can you drive without good ~~visibility~~? Analyti

Anti-Lock Brak
Traction Contr
Adaptive Cruis
Stability Manag
Econo Drive
Etc...

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Defining Analytics…

Analytics From Wikipedia, the free encyclopedia

Analytics is the application of computer technology, operational research, and statistics to solve problems in business and industry. Analytics is carried out within an information system: while, in the past, statistics and mathematics could be studied without computers and software, analytics has evolved from the application of computers to the analysis of data and this takes place within an information system or software environment. Mathematics underpins the algorithms used in analytics - ***the science of analytics is concerned with extracting useful properties of data*** using computable functions (see Church-Turing thesis), and typically will involve extracting properties from large data bases (see data mining). Analytics therefore bridges the disciplines of computer science, statistics, and mathematics.

A simple definition of analytics is "the science of analysis". A practical definition, however, would be that analytics is the process of developing optimal or realistic decision recommendations based on insights derived through the application of statistical models and analysis against existing and/or simulated future data.

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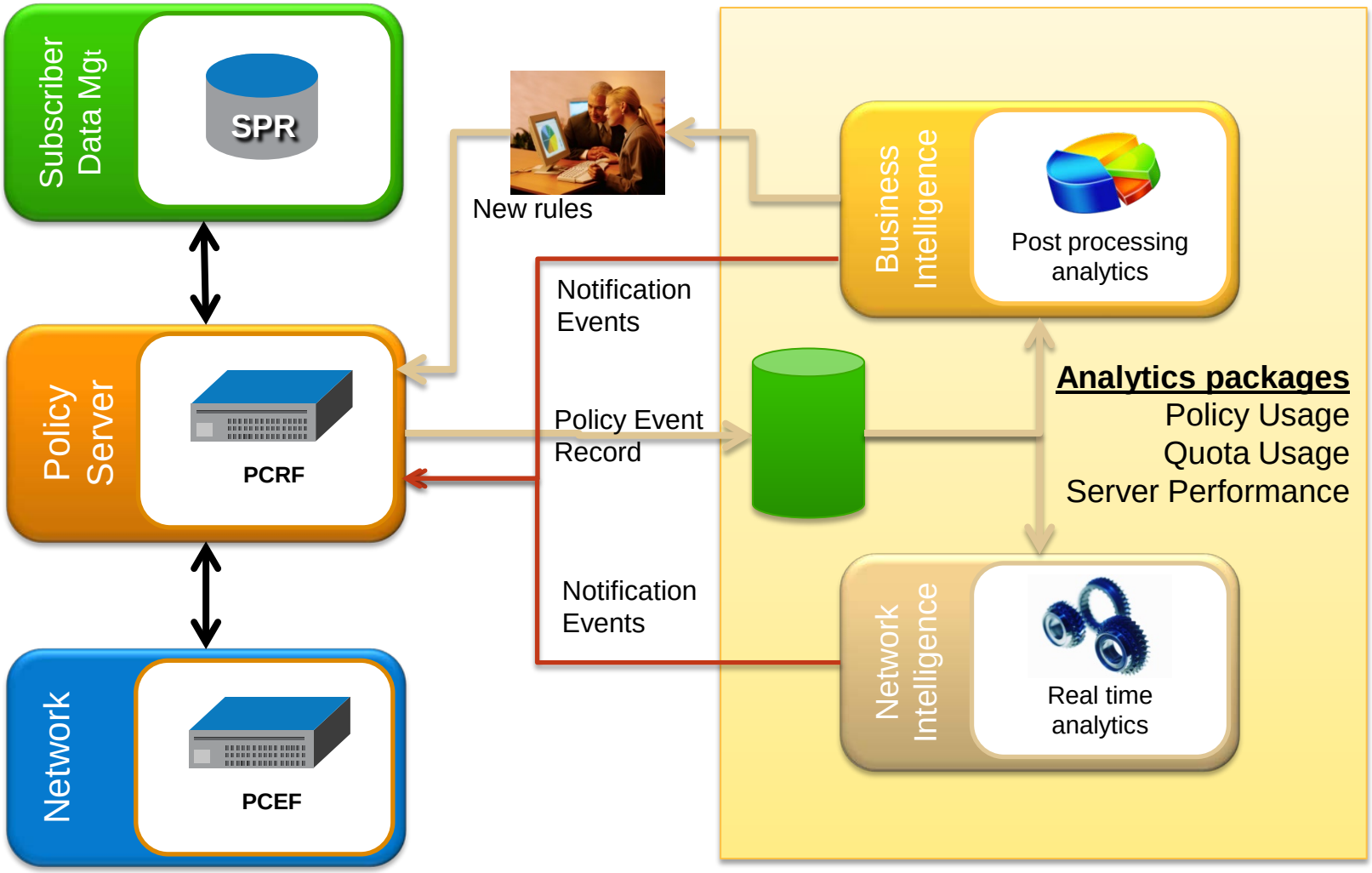
Let's use Policy as an example…



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Analytics answers Marketing, Planning, & Ops. demands…

Sarah: "I want to launch a specific package for the tablets but I am not sure how many subscribers will be impacted. Can we simulate a new policy before we implement it?"

John: "Are the new policies on this service effective? How do they compare with similar smartphone policies?"

Julie: "Which subscriber set should we target to upsell a higher tier? How can we generate more revenues from our existing customers"

Paul: "What are the top 10 stranded policies? How can I clean up ineffective policies to improve policy performance?"

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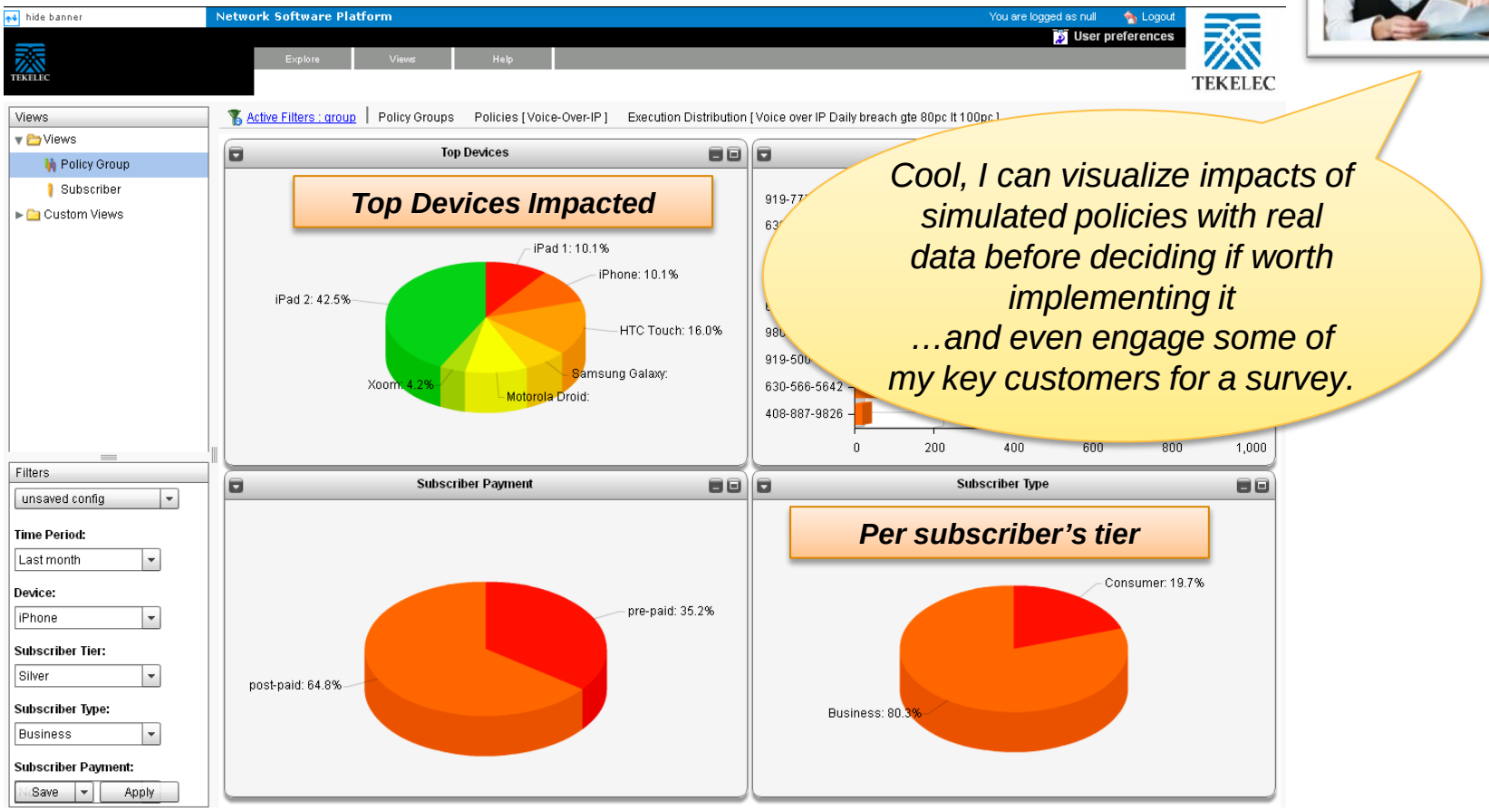
Sarah selects the specific ‘what-if’ policy



Cool, I can visualize impacts of simulated policies with real data before deciding if worth implementing it
…and even engage some of my key customers for a survey.

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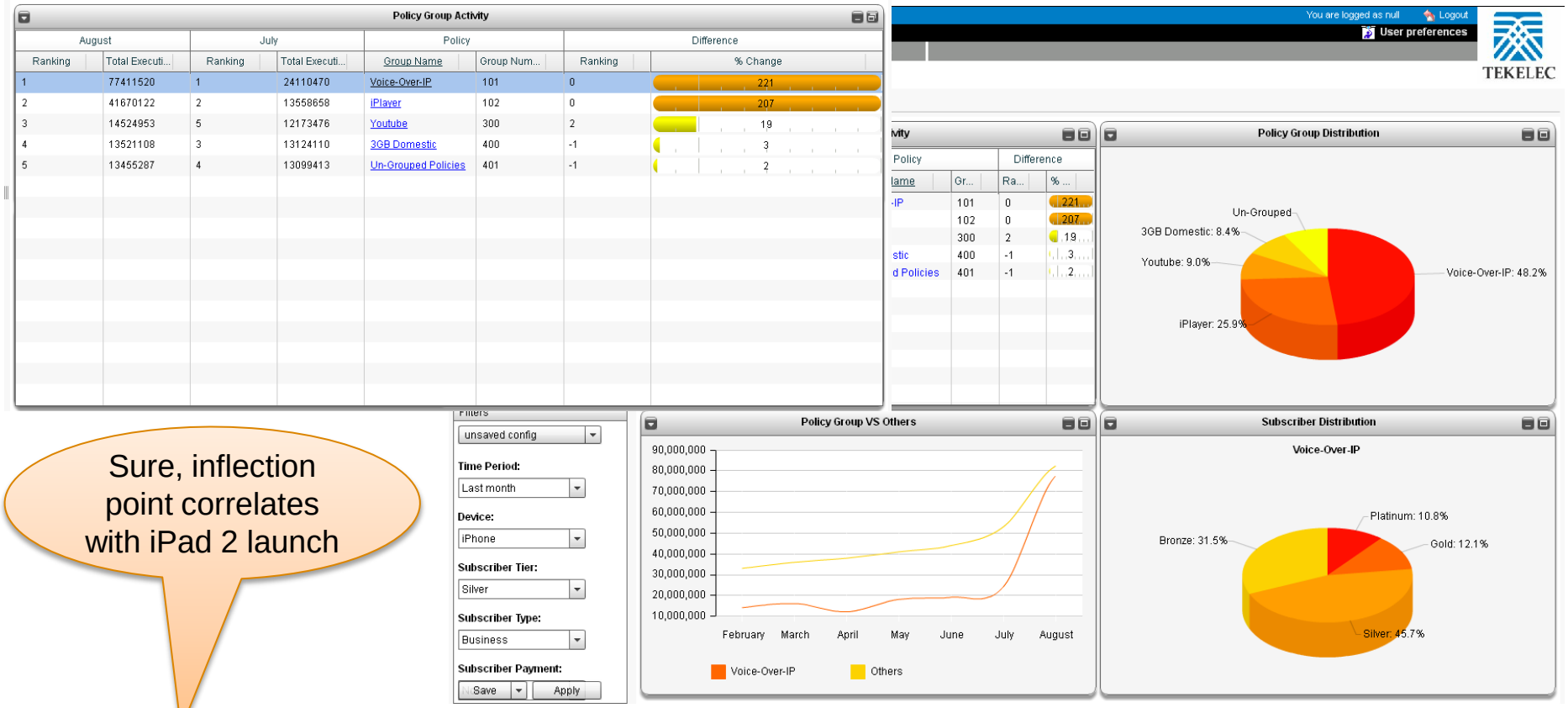
John accesses the Policy Activity Dashboard…



Sure, inflection point correlates with iPad 2 launch

- **Global overview of trends for groups of Policies**
- **Detect triggers from new offers or devices launch**

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Julie discovers new groups via Quota Usage…

Ha! Subscribers who exceeded their quotas is population to target for Gold Tier up-sell promotion

Subscribers who exceeded their quota – subscribers who extended their monthly quota = our $$ business opportunity!

Active Subscribers Quota Usage - August/2011

Tier	Avg Allocation …	Avg Use (MB)	Number Subsc…	lt 15% Usage	80% to 100% …	gt 100% Usage	Avg Excess Us…	Avg Top-Up Usage (MB)
All	5859	4372	137044378	8	56	13	1617	255
Platinum	6998	5511	38143431	4	58	10	1513	119
Gold	5533	4013	95495752	10	56	14	1494	180

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Tekelec Policy Analytics

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Backup

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Value of Analytics - let's take Policy as an example

- **Improve operator's capability of making informed decision when designing and implementing new plans**
  - By providing insights into policies impact on customers' behavior and rich segmentation
- **Improve business operation by speeding up the process of definition to implementation of effective policies**
  - By evaluating impact on subscribers, network and rules prioritization
- **Increase Policy adaptation to customer behavior**
  - By self policy adaptation based on analytics feedback

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Value of Analytics

- **Improve network adaptation with automated feedback to drive dynamic network changes**
  - By using near real time statistics
- **Improve operator's capability of making informed decisions when designing and implementing network plans / changes**
  - By providing insights into impacts on network & customer behavior and rich segmentation
- **Improve business operations by speeding up the process of definition-to-implementation**
  - By evaluating impact on subscribers, network and rules prioritization
- **Improve the customer experience**
  - By self adaptation based on analytics feedback

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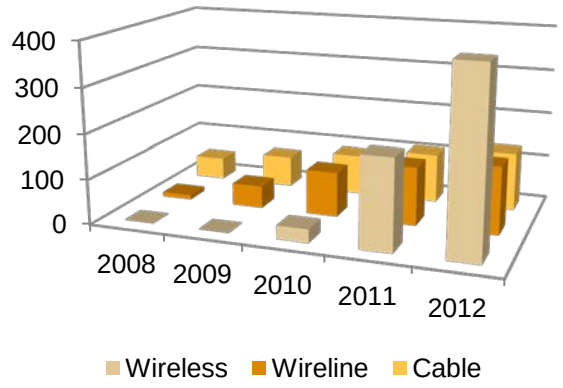
Increased policy management complexity…

- **Fast creation of new policies increases complexity and can impact overall network performance.**
- **Launching new devices increases complexity in terms of understanding and segmenting usage behavior.**



Average Policy Creation per Operator
Source: Tekelec PCRF customers

› Number of commercial plans keep growing but understanding how to maximize value of mobile data services is not keeping up

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Better understanding of a specific subscriber segment

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This segment exceeded their quota. Should we launch a special package and specific policy for them?

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Analyze specific “Voice over IP” per Device & Type

Hmm, my tablets represent ~50% of traffic in the last 6 months

OK, so this new service is primarily used by my top consumer postpaid customers

- **Deep dive to analysis per**
  - Device type
  - Subscriber Type
    - Prepaid, Postpaid…

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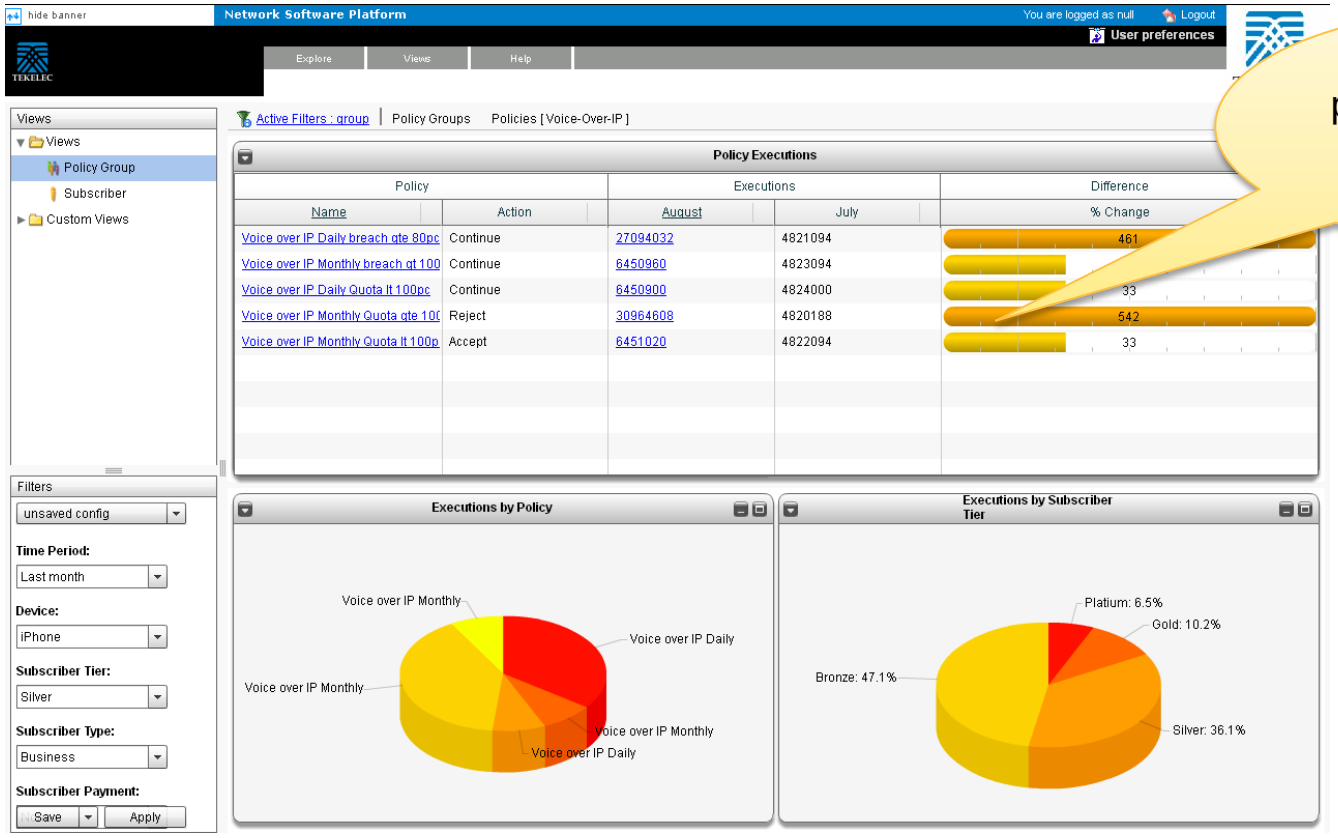
Paul reviews Top Policies for potential changes…



Should we tune this policy to enable more adoption by smartphones?

- **Comparison trend analysis between policies**
- **Detail per tier subscriber**

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Network & Business Intelligence Policy Feedback

- **Business Intelligence notification events (post processing)**
  - Generation of business valuable information for ex.
    - Subscriber over passing quota a defined consecutive number of times
    - Heavy user devices
    - Busy hours per location
    - …
- **Network Intelligence notification events (near real time)**
  - Generation of Network information for ex.
    - Detection of over used cells
    - …
- **Notification event can be interpreted by the PCRF**
  - Trigger PCC rules on dynamic policies
  - Condition of dedicated policies

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Additional Use cases …

- **RAN congestion**
  - Identify congested cells (Network Intelligence) and heavy users (Business Intelligence) and use them for network optimization
    - Optimization may or may not use heavy users
    - Optimization may use subscriber attributes like, tier, type and payment class
  - Congested cells (NI) may be identified for busy weekdays and busy hours from historic data
  - Criteria for congested cell identification may be Downlink volume (MB)
    - Uplink volume (MB) may be an alternative
  - Heavy users (BI) may be identified by downlink volume as criteria over last 7 days
    - Other criteria and time intervals may also be used
- **Upsell promotions**
  - Identify upsell subscriber (BI) and offer them special promotions for increased revenue
    - Promotions may use subscriber attributes, like tier, type and payment class
  - Potential subscribers may be identified by quota usage (download volume MB) as criteria over last 3 months
    - Other criteria and time intervals may also be used

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