IBM Cognos Interactive Visualization

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Agenda

- Overview of the Themes for Business Intelligence 10.2.1.x
- Interactive Visualization - What are we solving?
- Values of Analytics Zone and the Marketplace
- IBM Cognos Visualization Customizer
- Demo
- RAVE - Engine Behind the Scenes
- Q&A
IBM Cognos Business Intelligence V10.2.1.1

IBM® Cognos® Business Intelligence V10.2.1.1, central to IBM® Cognos® Enterprise, advances capabilities to provide interactive visualization, mobile, performance and support for big data.

Interactive Visualization
Amplify mobile business intelligence with new and innovative visualizations allowing users to quickly pinpoint trends in data.

Mobile
Leverage native and optimized web applications for Android and iOS to support a broader range of smartphones and tablets.

Performance
Get insights quicker than ever before through performance improvements gained from more efficient memory usage, reduced memory footprint and improved use of compression.

Big Data
Gain a more complete view of the business and act quickly off insights with expanded support for big data sources including Hadoop, analytic data stores and real-time streaming data.
Extensible Visualization provides a growing range of visualization options

**The problem:**

- Business analytics platforms have traditionally provided a fixed set of built-in charts
- Individual customers or industries demand customized or new visualizations
- Adding new visualizations into the pre-packaged library takes 6 months to 1.5 years

**The Solution:**

- Enable “pluggable” visualizations that can be added between product releases
- Provide an expanded and growing set of visualizations that can be selected and used by customers
The Basic Concept

The old way…

Fixed Charting Library

Analytics & Visualization Engine

The new way…

Extensible Charting Library

Analytics & RAVE Visualization Engine

Visualization Description
IBM Rapidly Adaptive Visualization Engine
IBM Cognos BI: Analytics Gets Personal
Visualize everything

Engage

Compelling Experience
Focus on end user interactivity and LOB consumption appeal

Everywhere

Platform Independent
Interact with your visualizations anywhere, anytime

Extensible

Integrate Novel Viz
Incorporate new chart types to solve emerging business problems

Easy

Guided Creation
Automatically recommend the best visualization for your data
Why Visualize?
Simple Example

I want to understand...

...achievement level distribution of my student population across subject areas
...how the distribution has changed over time
...how dramatic the change has been
...how my subject areas compare

How long does it take to acquire the desired understanding from this (very small) tabular data?

Let's try looking at it visually...
Simple Example (cont.)

I want to understand...

...achievement level distribution of my student population across subject areas
...how the distribution has changed over time
...how dramatic the change has been
...how my subject areas compare

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<td>8%</td>
<td>10%</td>
</tr>
</tbody>
</table>
I also want to understand…
...trend of each achievement level
...how the trends compare across subject areas
Simple Example (cont.)

In addition, I might want to understand...

...how achievement level distribution compares across gender, ethnicity, grade

...how achievement level distribution compares across schools

Evaluating multiple schools becomes progressively more challenging with tabular data
The value of data visualizations

- Incorporate new and innovative visualizations in general reporting and Cognos Active Reports
  - Authoring within Report Studio and Cognos Workspace Advanced.
  - Consumption and assembly in Cognos Workspace
  - Improved usability with the Visualization library
- Enhance the user experience through the delivery of interactive and animated charts
- Integrate custom visualizations
Extensible Visualization

**Extensible Visualization**
lets you download just the right visualization when you need it

**Interactive, Engaging Visualizations**
that enable rapid understanding
IBM RAVE powering visualizations today

Link to Extensible Visualization and Visualization Customizer on Analyticszone.com
Cognos Workspace Examples With New Interactive Visualization
Cognos Workspace Examples With New Interactive Visualization
Cognos Workspace Examples With New Interactive Visualization on Mobile
Values of Analytics Zone and the Marketplace
New visualizations are a simple download away

NEW! Visualization Marketplace

Browse and download from over 30 visualizations from the extensible visualization community.

- Scatter
- Gantt
- Area
- Radar
- Boxplot
- Dial
- Treemap/Heatmap
- Plus a continually growing set of visualizations

analyticszone.com/visualization
DEMO

Cognos General Reporting with Interactive Visualization

https://www.youtube.com/watch?v=ULD6B7GM93o&list=PL0hKkrT8yJOnhDxq3ADNZNMqumpKvoREa&index=32
Interactive Visualization

- Marketplace
- Report Server (AR/RS/CWA)
- AVS Gallery
- Visualization Catalog
- Admin
- File System
- IBM Cognos Visualization Customizer

Now available
IBM Cognos Visualization Customizer
IBM Cognos Visualization Customizer

- Provide the flexibility to change popular properties for visualizations such as colors, fonts, labels etc.

- How to Videos available directly in the product and on AnalyticZone.com

- To get access: ibm.biz/viscustomizer
DEMO

Customizer
Rapid Adaptive Visualization Engine (RAVE)
The New IBM visualization Engine

Not a prescribed “Library of Charts”

- A highly adaptive framework that allows each integrator to quickly create and customize their own library of charts and interactive visualizations

- Based on the patented SPSS “Grammar of Graphics” approach

  – Use a simple language to describe a visualization

  – Language has the flexibility to describe known chart types

  – Language has the extensibility to describe new advanced visualizations
Use the flexibility of RAVE to create almost any chart

**Old Way – Charts are “Types”**
- Fixed Set of “supported charts”
  - If it isn’t in the list, you can’t have it
- Expensive and slow to innovate
  - Each new chart is a new development effort
- “Ad hoc” features tightly coupled to type
  - E.g. “Animation only implemented for Hans Rosling-style bubble charts, not for all charts”
  - Adding a new feature to 20 charts is a large effort

**Our Way – Grammar of Graphics**
- A language-based specification of a chart
- In terms of features, not “types”, e.g.
- “**bar chart**” = basic 2D coordinates, categorical x numeric displayed with intervals dropped from locations
- “**line chart**” = basic 2D coordinates, any x numeric displayed with lines connecting locations
- “**histogram**” = basic 2D coordinates, numeric x statistic *binned counts*, displayed with intervals dropped from locations
- Orthogonal set of features describes all common charts, **virtually all** uncommon charts, and most cutting-edge research charts

**Kills creativity**
Interactive Charting

Dynamic, interactive and flexible visualizations across mobile, desktop and web

Common, traditional business charts

More advanced/non-traditional business charts

Visualizations that would typically require a dedicated graphics programmer
Flexibility: Simple description update to change the visualization

Before:
```json
{
  "type": "interval",
  "position": [
    {"field": {"$ref": "pop2010"}}
  ],
  "color": ["field": {"$ref": "pop1960"} ]
  "style": {"stroke": {"width": 0.25}}
}
```

Add a position field to make it a range chart with start at 1960, end at 2010

After:
```json
{
  "type": "interval",
  "position": [
    {"field": {"$ref": "pop1950"}},
    {"field": {"$ref": "pop2010"}}
  ],
  "color": ["field": {"$ref": "pop1960"} ]
  "style": {"stroke": {"width": 0.25}}
}
```
Flexibility: Simple description update to change the visualization

Add a point element for 1980 populations

After:

```json
{
  "type": "Interval",
  "position": [
    {
      "field": {$ref: "pop1960"},
      "field": {$ref: "pop2010"},
      "field": {$ref: "name"}
    }
  ],
  "color": [ {"field": {$ref: "pop1960"}} ],
  "style": {"stroke": {"width": 0.25}}
}
```

```json
[
  {"type": "point",
   "position": [
    {
      "field": {$ref: "pop1980"},
      "field": {$ref: "name"}
    }
  ],
   "style": {"fill": "navy", "size": 8}]
}
A single spec provides the same visualization in Desktop, Web, and Mobile.