Using Crystal Reports:

Examples of Richly-Formatted Report Creation by Non-Developers

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1. Context
2. What does Crystal Reports do for a living?
3. Some example Crystal Reports
4. Crystal Reports Applications: Designer/Viewer paradigm
5. Examples of “End User Programming” topics in Crystal Reports
   - Rich Formatting and heavy use of formula language
   - Managing Data Model Complexity
   - Performance and powerful features: subreports
   - Templates and Styles as a solution?
6. Additional Topics as Time Permits
7. Summary/Discussion
Context

- Crystal Reports
  - Is a very pervasive and popular reporting solution
  - Provides a significant part of the Business Objects division of SAP’s revenue
    - Business Objects recognized as the #1 Business Intelligence Vendor with 14.2% market share and over $1B in revenue, 19.2% when combined with SAP BI [Source: IDC Market Analysis 2007]

- Why this presentation?
  - Customers tell us they wish Crystal Reports was easier to learn and easier to use, especially for non-developers. Note: Customers also tell us (and show us) they can do almost anything in Crystal Reports.
  - Synergy between making Crystal Reports easier for non-developers and the “end user programming” topics in this workshop?
  - I hope you find this an interesting part of your workshop 😊
What does Crystal Reports do for a living?

Electronic delivery of data based reports:
- formatted
- printable
- structured
- guided interactivity
- personalized
- standalone applications or embeddable into applications
- scalable and high-performing
Some Example Crystal Reports

Global Bond Hedged Report

Currency Breakdown

3.39 2.89 3.19

Ratings Breakdown

50.25 12.50

Income Statement

For the Month Ended Dec 1999
(In Thousands)

<table>
<thead>
<tr>
<th>December</th>
<th>QTD</th>
<th>YTD</th>
</tr>
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<tbody>
<tr>
<td>2000 Act</td>
<td>%</td>
<td>1999 Act</td>
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<td>Gross Sales</td>
<td>$256,751</td>
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<td>(20,433)</td>
<td>(8.0%)</td>
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<tr>
<td>Net Licensee Rev</td>
<td>3</td>
<td>0.0%</td>
</tr>
<tr>
<td>Net Revenue</td>
<td>$227,157</td>
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Cost of Sales

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<th>1999 Act</th>
<th>%</th>
<th>2000 Act</th>
<th>%</th>
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<td>(1,138)</td>
<td>(0.9%)</td>
<td>(1,138)</td>
<td>(0.9%)</td>
<td>(2,092)</td>
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<td>Net Quality Cost</td>
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<td>R&amp;D</td>
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<td>1.6%</td>
<td>3,346</td>
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<td>Other COGS</td>
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<td>870</td>
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<td>870</td>
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<td>Gross Profit</td>
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<td>65.1%</td>
<td>$139,134</td>
<td>65.1%</td>
<td>$139,134</td>
<td>65.1%</td>
<td>$1,186,401</td>
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<tr>
<td>Pricing Margin %</td>
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<td>50.0%</td>
<td>50.0%</td>
<td>50.0%</td>
<td>50.0%</td>
<td>50.0%</td>
<td>50.0%</td>
</tr>
<tr>
<td>O&amp;M % on Net Rev</td>
<td>30.0%</td>
<td>30.0%</td>
<td>30.0%</td>
<td>30.0%</td>
<td>30.0%</td>
<td>30.0%</td>
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<td>Revenue Units</td>
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<td>Licensee Units</td>
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Applications: Crystal Reports Designer

- Reports are created/design in Crystal Reports Designer

- $495 Designer
- $2,650 Server
Applications: Crystal Reports Viewers (many!)

- Reports are viewed, navigated etc in much simpler “viewers”.
- There is a wide range of these for varied technical environments: thin client, thick client, different technologies etc. Below is the free desktop viewer:
A selection of “End User Programming” Topics in Crystal Reports

“End Users” (aka non-developers) and

- Very rich formatting using **an extensive formula language**
- Self-service/direct to data workflows where there is no abstraction between the underlying data and the person creating the report
- Powerful features like sub-reports where being aware of performance is very important
- ….

- Opportunity: make this easier and more accessible to people not trained formally as developers - without diminishing the power and flexibility of the product
- We’ll go through examples…of today and also some possible ideas/solutions

Crystal Reports today:
With great power comes great responsibility. [*Spider Man’s Uncle Ben*?]
Example 1: Rich Formatting – Row Banding

Example: Row Banding
(x, y position, ...)
Example 2 - Rich Formatting – Conditional Formatting

Formulas today and helpers. Better helpers?

[Image of a software interface showing formula workshop and conditional formatting settings.]
Example 3 – Managing Data Model Complexity

Complexity of the source data (especially in application data) is a major problem.

Semantic models help provide a solution but someone has to model the information....
Example 4 – Powerful features i.e. subreports

- Reports can be nested in other reports. Very powerful. Challenge: put them in the wrong location in the report and the sub report will be called once for every detail row.

[Diagram showing Crystal Reports interface with subreports placed incorrectly]

Place subreport here – executed once 😊

Place subreport here – executed once for every detail record ☹️
Example 5: Templates – the silver bullet?

Could templates be a significant help?
Summary/Discussion

- We are actively working on making Crystal Reports easier to use, especially for non-developers.
- Are “end user programming” research topics applicable?
Additional Topics as time permits

- Formula language
  - Make it easier or make it less necessary?
  - Helpers/wizards & re-entrant problem
- How to move/bridge into more advanced workflows – is a smooth continuum possible/feasible?
  - Self-educating?

- Other topics
  - Persona based design
  - Much more usability testing
Thank you!