XBRL Challenge: An Open Source Application Development Competition

xbrl.us

February 2012

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Executive summary

The XBRL Challenge is a contest targeting developers to encourage the development of open source applications that consume XBRL data submitted to the U.S. Securities and Exchange Commission (SEC). Investors and other consumers of public company financial statement data stand to gain the most from XBRL formatting due to its ability to generate more accurate, timely, and granular data than content drawn from the traditional HTML or ASCII text filings. The goal of the contest was to build awareness among both investors and the developers that ultimately have a significant opportunity to gain from the growing volume of XBRL data available and the need for tools that work with it.

From the launch in July 2011 to the completion of the program and awarding of the final Grand Prize in February 2012, the contest garnered significant interest from the developer community. 84 teams, individuals or companies from all over the world entered the contest initially. At the end, five top candidates with working applications were selected as finalists. The Grand Prize winner chosen was Calcbench, a tool that performs multi-company comparisons within minutes of the corporate data being posted to the SEC web site.

The creativity and excitement generated among the entrants showed us that there is a tremendous amount of talent out there available to work with XBRL data. And the applications demonstrated the increased functionality that XBRL can bring.

The Situation

By the end of 2011, every public company listed on a US stock market was required by the SEC to submit financial statement data to them in XBRL format and today over 8,000 companies are filing in XBRL. Data produced in XBRL format is computer-readable which gives it greater portability, reliability, accuracy and timeliness, and can provide individual and institutional investors with better information for investment decisions.

The SEC stated in their final rule requiring XBRL for public company financial statement reporting:

We believe that requiring issuers to file their financial statements using interactive data [XBRL] format will enable investors, analysts, and the Commission staff to capture and analyze that information more quickly and at less cost than is possible using the same financial information provided in a static format. Any investor with a computer and an internet connection will have the ability to acquire and download interactive financial data that have generally been available only to large institutional users.1

The SEC rule was phased in over a three year period and by January 2012, every U.S. based public company had been reporting in XBRL for at least two quarters. More than 26,000 corporate financial statements had been submitted in XBRL by February 2012. The increasing breadth of data now available, with full company coverage and multiple years of historical data for many, has increased the value of XBRL data to investors. Marketplace demand among investors for tools to access corporate XBRL data has begun to increase.

1 Interactive Data Rules for Operating Companies (http://sec.gov/rules/final/2009/33-9002.pdf), January 30, 2009, U.S. Securities and Exchange Commission. Note that Foreign Private Issuers are not yet covered by the rule.

The use of XBRL in other reporting domains is also poised to expand. On September 30, 2011, President Obama signed *Public Law No. 112-34* – the Child and Family Services Improvement and Innovation Act. This law calls for data standardization and the use of non-proprietary data standards, such as XBRL, for reporting.

Separately, an even broader application of common data standards is under consideration in the form of the DATA Act (Digital Accountability and Transparency Act) which has been introduced in two separate but virtually identical versions to the U.S. House of Representatives (H.R. 2146) and the Senate (S. 1222). This bill calls for the use of common data standards such as XBRL for reporting of all federal government spending.

XBRL is under consideration in pending legislation as diverse as reporting on government spending, grants applications and corporate reporting to government.

The Opportunity

The implications of the volume of corporate data now available and the potential for government data to be in XBRL format as well, present a significant opportunity for developers and software companies to fill a growing need in the marketplace. The beauty of XBRL is that a tool designed to work with one "taxonomy" (digital dictionary such as the US GAAP Financial Reporting taxonomy used by public companies for their XBRL financials), can be adapted to work with other taxonomies for other reporting applications.

Developers have a unique chance to create databases and applications that meet a current market demand and that can then be applied to other reporting domains. There are considerable commercial prospects for XBRL-enabled tools.

What XBRL Can Do

XBRL solves two significant problems in the financial reporting world. First, it provides a standard format for communicating financial reporting data. This is important in that it unifies the physical way that information is reported making it possible for all varieties of software to process the information. Before XBRL, financial reports were communicated in a variety of formats such as plain text, CSV (comma separated values), HTML, PDF, Microsoft Word or Excel, and various XML formats to name a few. The use of multiple formats made it difficult for different software tools to process and communicate financial information. A single standardized format resolves the complications for the processing of reported information.

Second, XBRL provides a framework to define what is reported. This is essential for comparison of information. Before XBRL, it was difficult to look at two different companies' financial reports and do a side by side comparison. The problem lies in the naming of the values. Inconsistent names for the same reporting item made it difficult to do an apples-to-apples comparison. For example, one company may report total revenues as "Sales" while another reports revenues as "Revenues". XBRL provides the ability to define precise reporting terms that multiple companies can use while allowing the flexibility to label these same reporting terms differently for each company, thus making it clear that "Sales" and "Revenues" are different labels on the same total reporting term. XBRL also aids in identifying when information is not comparable.

XBRL is an enabling technology. It opens the door to better, free flowing financial reporting information. It provides the foundation for complex analytical applications. In the SEC environment, XBRL is used as the standard for the most common financial reports submitted to the SEC. The XBRL data provided can be accessed openly and freely.

How XBRL Works – XBRL versus XML

XBRL financial reports are prepared by filers as part of their financial reporting process. As filers work on their financial reports they map information they want to report to the US GAAP Financial Reporting Taxonomy (US GAAP Taxonomy), which defines the XBRL reporting terms, e.g., net income or earnings per share. In cases where the US GAAP Taxonomy does not provide for a reporting term that a public company wants to report, the filer can define their own terms. This is done in a way that clearly identifies which reporting terms come from the US GAAP Taxonomy (commonly reported information) and which are defined by the filer (less commonly reported or unique to the filer reported information). Along with the traditional text or HTML filing to the SEC, the filer also provides the XBRL version as a set of XML files.

Information consumers can access the XBRL files via the SEC's EDGAR (Electronic Data Gathering, Analysis, and Retrieval) system. The SEC provides access to current and historical filings and also provides an RSS feed of recent filings. The SEC makes the data available in a format that serves up a single company filing. Data consumers can access the data from an RSS feed, web site or FTP.

XBRL US posts the XBRL content into a database and provides access to the database to its members. The database reads the SEC's RSS feed to find new filings. For each new filing, it reads the XBRL files from the SEC, processes and converts them, and loads them into a relational database.

The XBRL US database provides two significant features to information consumers. First, it combines multiple XBRL filings - making is easier to access information from multiple companies in a single query. Second, it processes the XBRL formatted data to make the information accessible in a relational format using SQL, a standardized relational database query language. These two features make accessing the information for analytical purposes faster and simpler.

XBRL is used as the format for relaying the financial reporting information from the filers to the SEC. The XBRL US database aggregates the information from the XBRL files for analysis. In this model, XBRL provides the foundation to make the analysis possible. Other data aggregators can also provide XBRL-formatted data drawn from the SEC system to their users.

The XBRL US database and technical documentation on how to use it was made available to all entrants to the XBRL Challenge as the data source for their applications.

The Contest

The XBRL Challenge was launched in July 2011 and participants were invited to contribute open source applications for investors that leveraged corporate XBRL data that had been submitted to the SEC's EDGAR system. The goal was to raise awareness among innovators, technologists, software providers and data aggregators about the wealth of XBRL data now available, and to encourage the development of investor applications for commercial use.

A panel of five judges drawn from the investment, technology and academic communities, was assembled to review the Challenge entries: Alfred Berkeley, Security First Corporation; Marc Donner, Google; Eric Gillespie, Viano Capital; Philip Moyer, Safeguard Scientific; and Paul Ratnaraj, WRDS (Wharton Research Data Services, the data research service established to support faculty research at the Wharton School of the University of

Pennsylvania). Funding and sponsorship for the program was provided by the CFA Institute, WRDS and XBRL US.

To be considered, applications had to be open source, consume SEC XBRL data and meet deadlines set. Applicants were given access to the XBRL US database, technical documentation on how to use it and all applicants were invited to a series of webinars with technology and business experts to help in their process. Applications were judged based on:

- Improving access - enables investor stakeholder access to corporate data
- Usability - application quality, usability, and accessibility
- Design - originality and creativity, cannot be drawn from an existing design
- Extensibility - potential for further development and use
- Participation potential - engages and motivates target audience of investors and analysts

Open Source

The open source requirement was designed to encourage further development beyond this contest. The XBRL standard itself was developed through a consortium 2 representing creators, intermediaries and users of business information who contributed their expertise and insights to develop the standard. The XBRL Challenge was designed with the same spirit of collaboration in mind and every application contributed will now be available to other developers who wish to build on these tools, learn from them and ultimately expand upon them. The market need is there for open source apps but also for proprietary, for-profit commercial products and services.

One XBRL Challenger noted:

> "It is the community of the contributors, users, and adopters, forming the human side to what otherwise is an intensely intellectual and highly impersonal effort, and the social interactions that bring it about, that makes the project rewarding."
>
> - Herm Fisher, Mark V, creator of Arelle application

2 XBRL International was established in 1998 and today has 27 country-specific jurisdictions worldwide. XBRL US is the US jurisdiction that developed the initial XBRL US GAAP Taxonomy in 2008 through a collaborative effort of accounting firms, software companies, consultants, public companies and investment professionals, representing the corporate reporting supply chain. XBRL US also developed the 2009 release of the taxonomy and now works closely with the FASB (Financial Accounting Standards Board) which has taken on the role of maintaining the taxonomy.

The Challengers

The XBRL Challenge had 84 applicants (challengers). Contest applicants were geographically diverse with 71% from the US, 12% from Australia and Asia, 10% from Europe and the UK, and 7% from Canada. They were evenly split between individuals, academic teams and companies.

Motivating the Challengers

To encourage entry, challengers were given incentives including a Grand Prize of $20,000, but even more important, entrants were given the opportunity to learn about the XBRL technology by giving them access to the XBRL US database and technical expertise from XBRL US technology staff. To keep entrants engaged and learning, a Facebook page was created that served as the portal for Challengers to access information and ask questions. Several podcasts were held with the Challenge judges to explain their expectations and goals for the applications submitted. A series of webinars was held with professionals from the XBRL community to provide additional information on topics such as database structure, accounting standards and their impact on the US GAAP taxonomy, and considerations when building an XBRL startup.

The finalists were also self-motivated by the excitement of creating something new and of unearthing the value of XBRL-formatting for corporate fundamental data. One challenger noted:

> "The eureka moment [was] when I realized that, rather than force data into an overly long standard chart of accounts, all I needed to do was transport the 'as presented' financials to Excel and allow its powerful in-built database functions to do the rest. The icing on the cake was when I recognized this simple and elegant solution had the added advantage of opening up a route to the long sought after holy grail of financial data collection – perfect transparency back to the source."
>
> - Jim Truscott, creator of XBRL to XL application

Finalists

The top applications fell into a handful of categories: applications that analyze a single company, applications that perform multi-company analysis and middleware. As expected, many applicants dropped out over time due to time constraints and from the initial 84 applications, there were 15 final completed submissions.

Five finalists were selected from this group based on the criteria stated above. Detailed descriptions, user guides, videos and source code for the final 15 submissions and top five finalists can be found at http://xbrl.us/challenge. Here is a brief overview of the four runner-up finalists:

Advanced XBRL Processing by OXIDE Solutions
This cloud-based service provides a platform that allows the user to navigate the taxonomy, and to look up and extract filings by company and industry from the SEC. The tool also performs analysis including charting and ratio reporting.

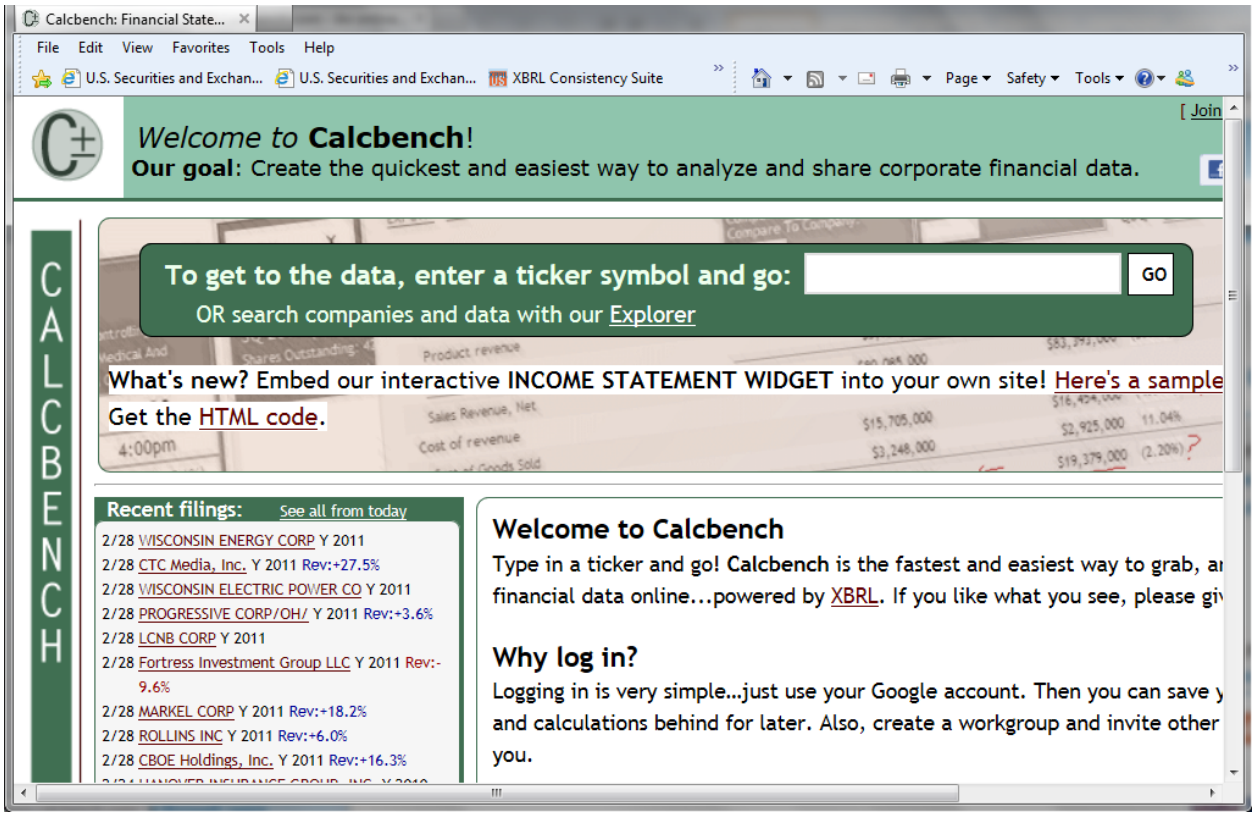
Arelle®
This application is a generic XBRL processor that works with any XBRL data including SEC data. It was designed to be used as middleware, where an API manages the XBRL files and analytical applications can be layered on top. Arelle can also extract XBRL data through a link from, for example, the SEC EDGAR system. Once the data is in report form, Arelle allows users to see the properties of the data. Arelle must be downloaded to access.

XBRL to XL
This application downloads corporate XBRL data into Microsoft Excel via the web for multi-filing comparisons across companies or over time. Data is downloaded in a form designed to maximize comparability and transparency. It also performs some basic standardization across multiple filings but still relying on the as-reported company data.

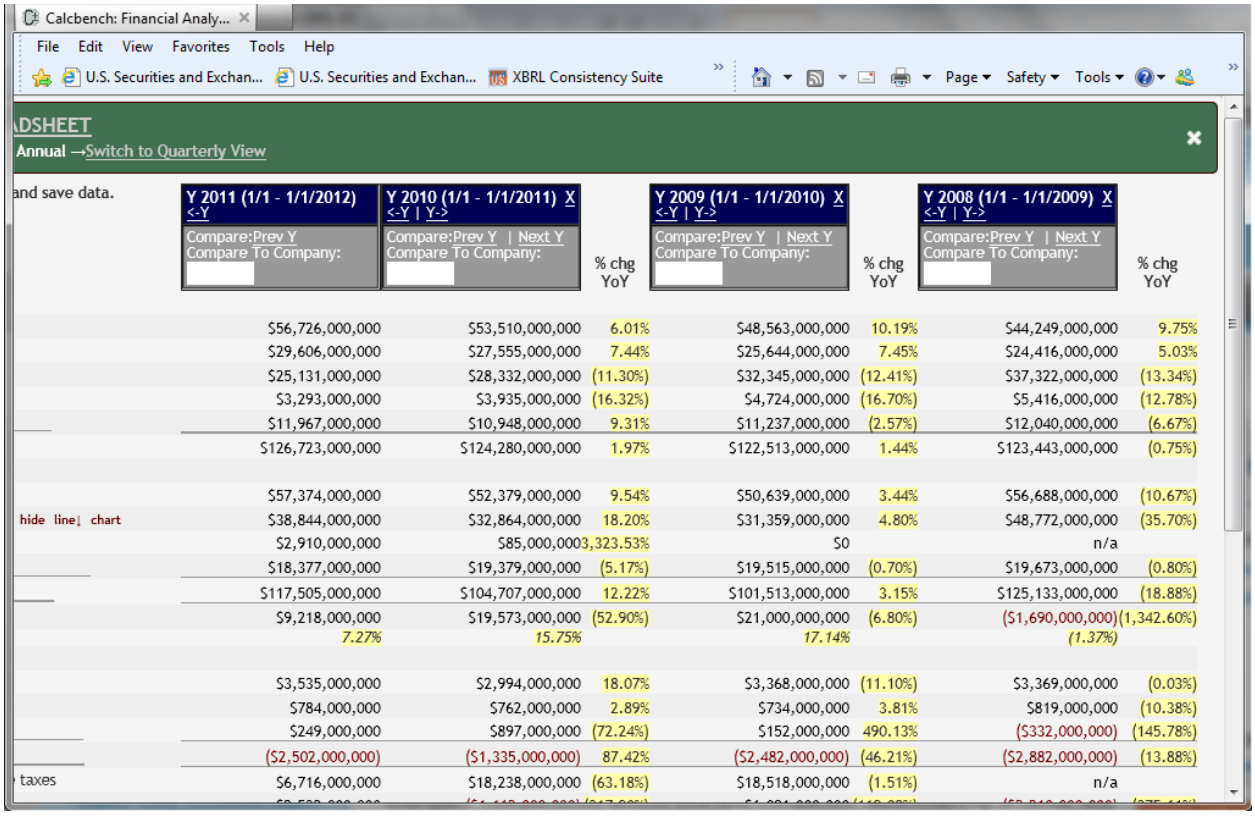
Xburble
This is a desktop application written in Groovy that allows a user to search across company earnings reports in XBRL format. Filings can be viewed within the application, exported to Excel, and merged for comparison purposes.

The Winning Application

Calcbench, an online XBRL analytics toolkit and user community (http://www.calcbench.com), was selected as the Grand Prize winner based on the strength of the user interface and the analytics provided which allow users to perform multi-company comparisons annually and quarter to quarter.



Users can add their own notes and formulas, export to Excel and share their work with others. The judges felt that Calcbench offered the most complete, functional application that provided a strong model to build on for other applications.



One of the Founders of Calcbench stated,

> "Our best moment was when we realized we'd created a tool we suddenly couldn't live without. In the startup world 'eat your own dogfood' is how they remind you that if you aren't using your own product, no one else will either. Well, we've been eating so much dogfood we've been tempted a few times not to share it with anyone else. Learning about new companies as the filings come in; identifying new investment ideas; finding new tricks to validate those same ideas."
>
> - Pranav Ghai, co-Founder, Calcbench

Calcbench was co-founded by Pranav Ghai, an analytics professional with experience at Morgan Stanley and IDG, and by Alex Rapp, who works out of Cambridge's Dogpatch Labs which connects entrepreneurs, and help founders conceive, launch and grow startups. Pranav and Alex both have backgrounds in financial services and attended Bates College together.

Plans Going Forward

All open source applications contributed to the XBRL Challenge contest will remain on the XBRL US web site for further adaptation. On September 11-12, 2012, XBRL US will hold its national conference in Austin, TX, which will feature a developer/technology segment to further educate developers and IT professionals in

investment houses, and to showcase XBRL-enabled applications, both open source and commercial. For more information on this program, check the XBRL Web site at http://xbrl.us.

The large number of applicants and the strength of the entries in the XBRL Challenge demonstrated the potential and the creativity in the market. We look forward to launching the second annual XBRL Challenge in early Summer 2012. Please watch our Facebook page and web site (http://xbrl.us) for updates.

The Sponsors

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CFA Institute is the global association for investment professionals. It administers the CFA and CIPM curriculum and exam programs worldwide; publishes research; conducts professional development programs; and sets voluntary, ethics-based professional and performance-reporting standards for the investment industry. CFA Institute has more than 105,000 members, who include the world's 95,000 CFA charterholders, in 135 countries and territories, as well as 135 affiliated professional societies in 58 countries and territories. More information may be found at http://www.cfainstitute.org.

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http://wrds.wharton.upenn.edu

About XBRL US

XBRL US is the non-profit consortium for XBRL business reporting standards in the U.S. and it represents the business information supply chain. Its mission is to support the implementation of XBRL business reporting standards through the development of taxonomies for use by U.S. public and private sectors, with a goal of interoperability between sectors, and by promoting XBRL adoption through marketplace collaboration. XBRL US has developed taxonomies for U.S. GAAP, credit rating and mutual fund reporting under contract with the U.S. Securities and Exchange Commission.

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