



COREL™
Smart Graphics

...and the value of XML-based graphical applications

a white paper from Corel Corporation

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Executive Summary

It's a content-saturated world. The proliferation of content being distributed by electronic media has created a virtual sea of text, data, and images for enterprises to contend with. The adoption of XML has given text and data the ability to interact with each other. Until now, however, the promise of interactivity has not extended to graphics.

To address this problem, Corel Corporation has developed smart graphics solutions. Smart graphics are based on Scalable Vector Graphics (SVG), which is a standard for describing vector graphics in XML. Corel smart graphics solutions enable developers and designers to create personalized, interactive graphics for both print and the Web.

Corel smart graphics solutions allow companies to bring together different content types into a common, seamless workflow. They make it easy to integrate text, graphics, data, and business processes from across the enterprise. They reduce content creation costs, increase productivity, and open up new revenue opportunities. Corel smart graphics solutions provide enterprises with the edge they need to maximize efficiency and meet the cross-media demands of the future.

The problem

A sea of content and data

Within today's enterprises, an ever-increasing amount of content is being created, stored, and distributed by electronic media. Today's content consists of text, data, and images. The widespread acceptance of XML suggests that text and data are able to interact. Most images, however, are still bitmaps. Since bitmaps are static, they provide little potential for interaction with text, data, or other images. Basic ideas can be represented as bitmapped images, but it is not feasible to create an image for every possible modification of that idea.

In addition, most of today's graphical interfaces are static because they are comprised of bitmaps. To build limited interactivity into a bitmap-based interface is difficult, time-consuming, and expensive. Bitmaps are large, slow to transmit, and cannot be scaled without a loss of quality.

Attempts to solve these problems using proprietary solutions have been expensive, limited, and typically unsuccessful. The adoption of a proprietary or custom file format creates barriers to reusing and extending content and introduces the risk of investing in dead-end technology.

Amid this sea of content, it is often difficult to find the critical, relevant, or important information. Still more challenging is presenting that content in a form that business people can quickly understand and act on.

Enterprises that must contend with large amounts of information require images that can connect to any data source, including legacy content, databases, and Web services. The ability to create images based on disparate data sources that enable quick and effective business decisions is critical.

Corel smart graphics solutions

Smart graphics

Smart graphics are much more than static images. They are graphics that can interact with and be driven by other sources of information. They can interact with users and convey information in real time. In addition, smart graphics can recognize and adapt to such things as platforms, applications, and user characteristics. This functionality makes smart graphics the foundation for the efficient development of compelling visual interfaces.

Smart graphics can:

- send and receive data
- be animated with Synchronized Multimedia Integration Language (SMIL) and JavaScript™
- present high-quality images
- be enlarged or reduced without loss of quality
- respond to user input
- be dynamically generated from data-driven server-side processes which makes them easy to maintain
- be distributed and viewed on multiple devices and platforms.

Scalable Vector Graphics (SVG)

Corel smart graphics solutions are based on SVG, a standard for describing vector graphics in XML. SVG is supported by the World Wide Web Consortium (W3C®) – the group that developed HTML, SOAP, and XML. Technologies supported by the W3C are being designed and developed by most major software vendors in cooperation with Fortune 100 companies across all industries. SVG enables developers and designers to create personalized, interactive graphics for both the Web and print.

The following characteristics make SVG the ideal standard for smart graphics

- **Open-standard and text-based:** it is searchable, human-readable, and can be parsed. Manipulation of SVG does not require proprietary technology at design or run-time.
- **Interoperable:** it supports legacy applications and data, can be integrated into any environment, and is compatible with any operating system on any device
- **Extensible:** works with Cascading Style Sheets (CSS™), the Document Object Model (DOM), Extensible Style Language (XSL™), and more. Because SVG is a subset of XML, it is also fully extensible and interoperable with other XML languages.
- **Functional:** it provides extensive support for animation and interactivity using SMIL, JavaScript, or a combination of the two. It supports XSLT and CSS styling which enables graphics to be personalized and customized. It supports layering, anti-aliasing, multiple font options, ICC color profiles, and bitmap filters. SVG graphics can be scaled without any loss of quality. This permits high-resolution viewing at any zoom level, and high-quality printing at any output size.
- **Lightweight and portable:** SVG files are generally smaller than alternative graphics formats, which means that SVG-based Web pages download much faster. The SVG Mobile specification—consisting of SVG Basic for PDAs and SVG Tiny for smaller devices with low processing power—is designed specifically to enable mobile devices to display SVG graphics.
- **Structured and manageable:** Like XML, SVG is structured data, and this makes it easier to manage. SVG can be re-used and re-purposed by modifying graphical attributes. This eliminates the need to manually re-create graphics for each new application.

How will Corel's solution help?

Corel smart graphics technology helps create interfaces which allow decision makers to visually interact with, and quickly understand information. One smart graphic can replace thousands of static bitmaps. An idea, and every subsequent permutation of that idea, can now be visually represented and dynamically updated. This eliminates the need to create and store thousands of graphics. It also allows for accelerated and improved decision making, as well as increased productivity and efficiency. With a vast toolkit of software, and expertise in XML technologies, Corel delivers powerful solutions that maximize the efficiency of today's IT systems and meet the cross-media demands of the future.

A Corel smart graphics solution in action

An international bank has invested heavily in technology to automate its client services. To truly capitalize on its investment, a solution is required to bring the full power of this infrastructure directly to customers. A product manager has been tasked to create a new solution that will amalgamate all the bank's services into a concise, easy-to-use, content framework that can be quickly personalized. Within this new framework, bank customers will access services through any device connected to the Internet and will receive detailed printed reports on demand. The product manager has been asked to implement this new solution in an extremely tight time frame.

The short-term objective is to create a compelling, interactive experience so that clients will take advantage of online services. The long-term objective is to create new revenue opportunities. The bank has recently invested in expensive servers, technology, and applications. The challenge is to leverage this infrastructure to deliver the solution without disrupting existing service or making new investments in core technologies.

The bank wants a solution that is both standards-based and extendable for the future. Using the Corel smart graphics solution engineers work independently of the interface designers developing the business logic. Designers attach rules and logic to their graphics, enabling graphics to respond to changes in information, environments, and user input. The resulting XML-based smart graphics integrate easily into the bank's existing Web and content management infrastructure. Because the presentation layer is separate from the business logic, changes to the interface do not disrupt the infrastructure development process.

The resulting solution delivers all of the bank's services in electronic form, to multiple devices in an interactive and dynamic format. Customers benefit from an interface that's easy to use, provides a full range of banking services, helps them quickly visualize financial information, and dynamically updates any changes made to their portfolio.

The bank benefits from increased customer satisfaction, increased revenue on traditional services, potential for an increased customer base, and reduced costs associated with providing these services.

Summary of benefits

Corel smart graphics solutions provide significant advantages when compared with existing technologies for building visual interfaces.

Smart graphics separate logic from presentation. This allows the presentation layer to be developed, distributed and maintained independently of the application logic. Changes to the interface do not require changes in application logic. This results in tremendous efficiency in the development and maintenance of visual interfaces and a reduction of overall cost.

Smart graphics are lightweight and scalable. Unlike standard graphics, they easily translate to devices with small screens. End users can view visual interfaces with complex graphics anytime, anywhere, and on any device.

Corel smart graphics solutions are based on non-proprietary file formats. This eliminates dependency on a single vendor or solution provider. It means that Corel smart graphics solutions are interoperable with legacy systems as well as emerging technologies. Open standards ensure that the smart graphics solutions will be viable and extendable in the future.

Corel smart graphics solutions provide efficiency in the creation, maintenance, and deployment of content. They streamline the workflow by allowing for the reuse of visual interface elements. Corel smart graphics solutions easily integrate with multiple systems and data sources, and work with the hardware you already have.

Corel Corporate Profile

Founded in 1985, Corel Corporation (www.corel.com) is a leading technology company specializing in content creation tools, business process management and XML-enabled enterprise solutions. The company's goal is to give consumers and enterprise customers the ability to create, exchange and instantly interact with visual content that is always relevant, accurate and available. With its headquarters in Ottawa, Canada, Corel's common stock trades on the Nasdaq Stock Market under the symbol CORL and on the Toronto Stock Exchange under the symbol COR.

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