



Case Study: PowerPoint-to-Flash Converter

Client: Macromedia

Project title: Breeze

Project domain: Custom software development

Business domain: Software and technology

* Background

Macromedia is the world leader in rich media development tools. Headquartered in San Francisco, CA, Macromedia has been producing Web and application development software since 1992. The company employs over 1500 people and its revenues for 2004 exceeded \$400 million. Macromedia Flash Player is installed on more than 98% of Internet-connected desktops, and more than half a billion users have the Flash client installed. Macromedia products are used by 90% of Fortune 1000 companies.

StarSoft was initially contracted by eHelp Corporation to develop a standalone PowerPoint-to-Flash converter. After eHelp was acquired by Macromedia in December 2003, Macromedia found that eHelp's conversion technology developed by StarSoft was superior to their in-house tool, and decided to include it in their Breeze product line. Based on Macromedia Flash, the leading technology to deliver interactive content on the Web, Breeze delivers high-impact online conferencing and collaborative web communications by providing unique support for video, voice, data, animations, and simulations.

In 2004, StarSoft started developing the new version of the converter with greater functionality and incorporated support for recent versions of both PowerPoint and Flash.

* Project scope

StarSoft was contracted to deliver a full-blown PowerPoint-to-Flash converter to be consequently incorporated into Macromedia's Breeze product line for seamless presentation of PowerPoint content on the Web. StarSoft development team was responsible for complete development of the converter, testing and support.

* Product requirements

This project presented many unusual technical challenges rooted in the fact that PowerPoint is essentially a set of formats corresponding to the different versions of the software, and as such is completely undocumented. Therefore, the development team members had to decipher on their own which bits of the binary code corresponded to which complex piece of functionality like support for embedded video or text box formatting.

As an example of a challenge to be solved by StarSoft development team, some of the dotted curved line types used by PowerPoint are not supported in Flash. These curves had to be manually programmed by StarSoft engineers using complex mathematical formulas for correct rendering in Flash. Another challenge had to do with the fact that PowerPoint and Flash treat fonts and text sizes differently, which leads to incomplete resemblance to the original when rendering text boxes in Flash. The differences had to be "ironed out" manually





Best practices: **Macromedia**

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through careful research and calculations. The same applies, for example, to achieving the precise timing for PowerPoint animation effects, animation speeds (FPS), etc.

The features that had to be supported in the converter included:

- Support for PowerPoint 2003
- Animation effects
- Embedded multimedia
- Support for Asian languages
- Compliance to the WCAG 1.0 standard (accessibility for disabled)

* Technologies

Programming language: C++

Technologies: PowerPoint, Flash

* Project overview

Duration: August 2003 – February 2005

Team size: 7-9

Pricing: Fixed Price

* About StarSoft

StarSoft Development Labs, Inc. is presently one of the fastest growing software outsourcing service providers in Russia and Eastern Europe. Headquartered in Cambridge, Massachusetts, USA, StarSoft maintains a software development center in St. Petersburg, Russia. StarSoft specializes in implementation and maintenance of information systems, offering particular expertise in database development and migration of legacy systems to web-based environments. StarSoft offers its customers a wide range of engagement models including both project lifecycle services and dedicated Offshore Development Centers (ODC). StarSoft's former and current clients include CSC, T-Mobile, Macromedia, IBM, Dynix, Fellowes, Imagine Software, Contex, Tupperware, and others.

