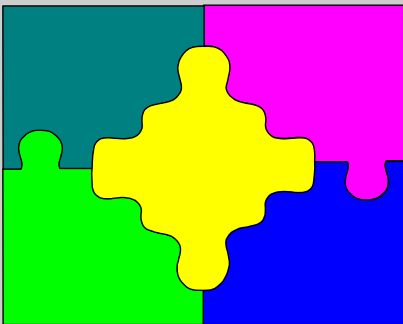
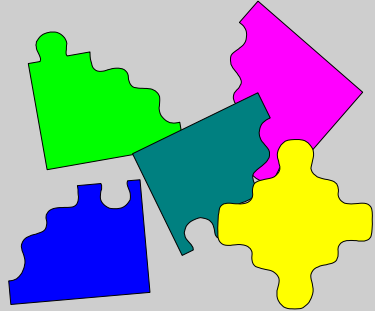


Jigsaw: Vision to Reality

Eric Clayberg
VP Development

Jigsaw, so what is it?



New foundation architecture for
distributed enterprise
development and deployment.

Code name for a new product
combining the best of Visual
Smalltalk Enterprise,
VisualWorks & VisualWave

Merge “**best of breed**” features of
current technology

Jigsaw: Introduction Plan

VSE

3.0

3.1

3.1.1

3.1.2

3.1.3

...

“Jigsaw”

“4.0”

“5.0”

“6.0”

...

Dst6.0

...

VWa3.0

...

VW 2.5

VW2.5.1
VWa1.0

Dst5.6
VWa2.0

VW2.5.2

...

PP-D Deliverables

Q4 1996

Jigsaw: First Partners release - delivered

Jigsaw: Function and feature freeze - Late December

VisualWave 2.0 DE and Server

DST 5.6

VisualWorks 2.5.2

Q1 1997

Jigsaw: Full Beta - Late January

VisualWorks Server

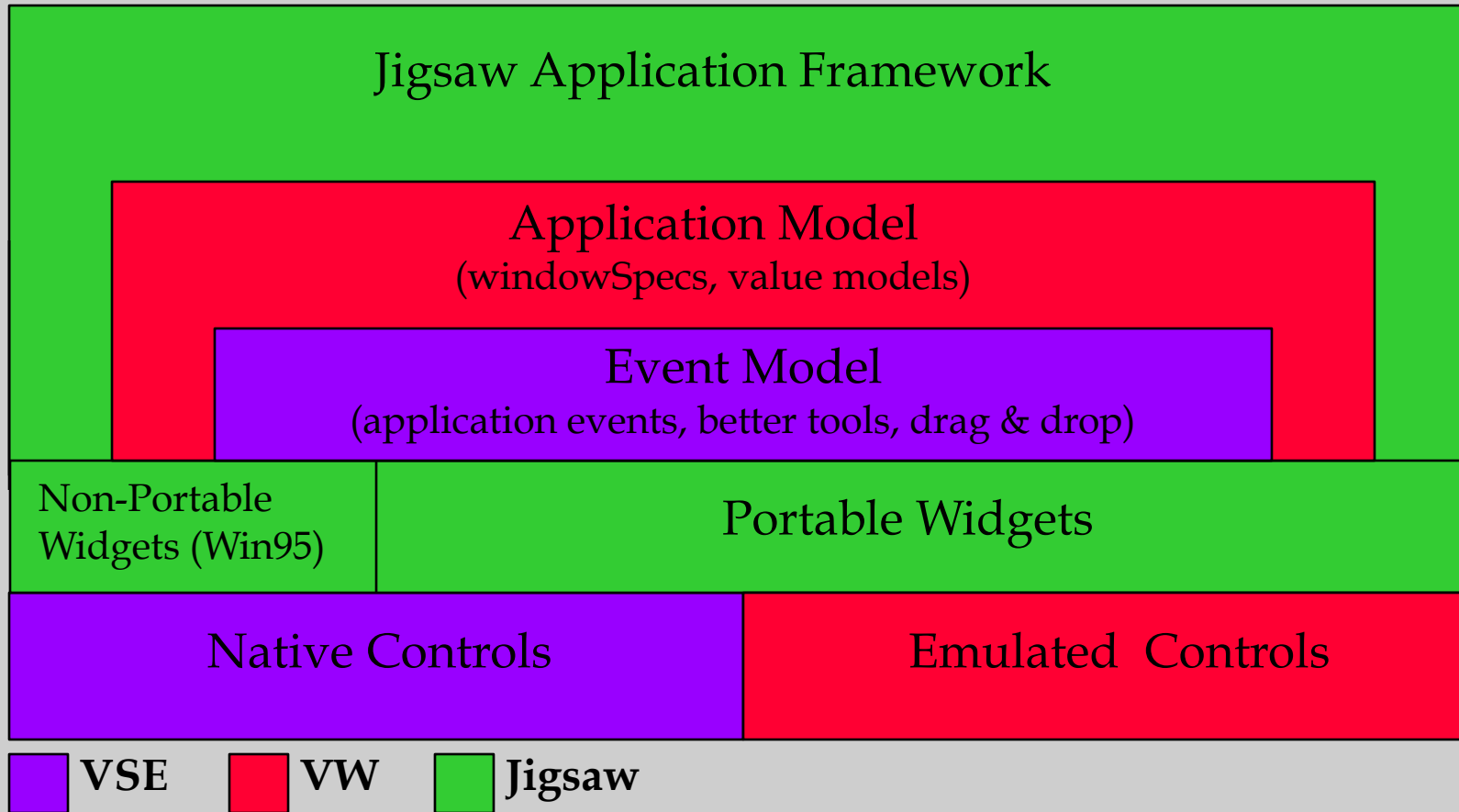
Q2 1997

Jigsaw: FCS/GA - Goal: Late April / Early May

Jigsaw Application Framework

- Native Widgets via VSE 3.1 Windows controls
- Emulated Widgets via VisualWorks 2.5 controls
- Unification of Application Model (VisualWorks) and Event Model (VSE)
- VisualWorks UI framework (windowSpecs) extended to use VSE
 - Native Widgets
 - Event Model
- Continued use of VisualWorks value models

Jigsaw Application Framework



Native Windows Client

Windows 95 Host widgets for development environment
& customer applications

Native Windows support for existing VisualWorks
Canvas widgets

All Windows 95 common control

Common dialogs

ActiveX support

COM, DCOM, Automation & Controls (OCX)

Windows 95 certification planned

Jigsaw GUI Builder

There will be only one GUI builder in Jigsaw
VisualWorks Canvas Editor plus best of VSE
WindowBuilder Pro

WEB interface generation

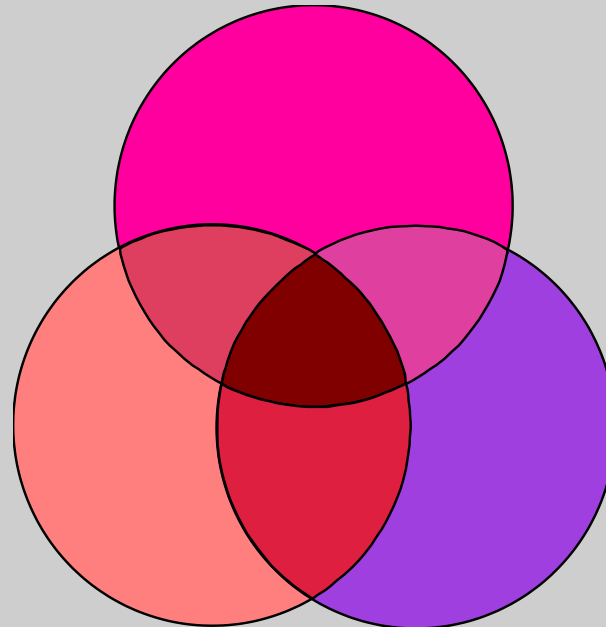
Visual construction / “wiring” is a planned feature for
future releases

Web Clients

VisualWave as a Jigsaw Plug-in

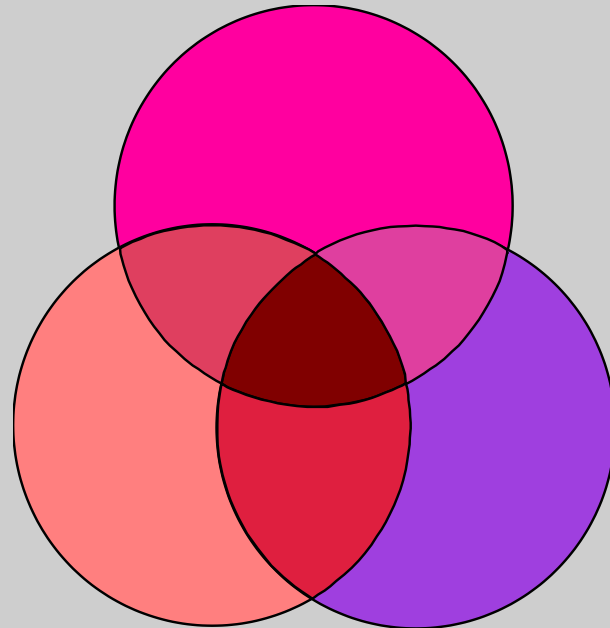
Support for existing VisualWave applications

New base for continuing VisualWave functionality



Distributed Clients

Distributed Smalltalk as a Jigsaw Plug-in
Support for existing DST applications
CORBA support and remote objects
Core to the environment



Database Connectivity

Database drivers, application frameworks and tools will
all be Jigsaw Plug-ins

Low-level interface based upon EXDI

Database support will continue for:

- Oracle

- Sybase

- DB2

- Informix

Communications

- Socket Support

Core Classes

VisualWorks derived with VSE extension

- Event model

- Exception handling

- Finalization

- Session model

X3J20 (ANSI) compliant

New Collection hierarchy

- Separation of policy and mechanism

- Scalability (large and small collection optimization)

- Synchronized collections (multi-threaded servers)

- Extensibility

- Better performance

Application Development Environment - “Cascade”

Code development tools

Code integration tools

Application delivery tools

Universal repository technology for all platforms

Language extensions to support application delivery

e.g... package, cluster, global variables, pool variables, ...

Derived from Team/V

Execution Technology

Based on VisualWorks Object Engine technology

Improved host interfacing

- Multi-threaded IO support (non-blocking API)

- Fixed space

- Ephemeron-based finalization

Application delivery

- SLL binding

Jigsaw Deployment Model

Create applications as component SLL's in development environment

SLL's bind to minimal runtime image for deployment

Smaller deliverables

Reduced runtime footprint

Simple, reproducible process

Compatibility



Development Environment

Business Logic

GUI Logic

VW Compatibility

Comparable to past major release upgrades
Minimal migration cost for existing VisualWorks applications

Extended VW 2.5 GUI Framework

- Window Specs enhanced with events

- Automatic conversion of existing Window Specs

- Automatic use of native widgets under Windows

- Emulated widgets supported under all platforms

VW Compatibility

Compatibility libraries for existing VW applications.

- Exceptions

- Miscellaneous obsolete protocols

Issues

- Subclassing: e.g. Collections

- Old classes provided for compatibility

Major changes in tools

- Cascade is next generation of Team/V technology

- However: continued availability of ENVY from OTI

VSE Compatibility: Development Environment

Cascade is “Team/V”

Concepts: Packages, Clusters, etc.

Tools: Package Browser, Package Organizer, etc.

Repository Model

New Repository Technology

New repositories/module features are Jigsaw only

PVCS repositories interoperable

Shared source packages via PVCS repositories

VSE Compatibility: Business Logic

Business logic hierarchies generally port with minimal changes

- Base classes follows published “Convergence Document”

- Additional VSE protocol provided as compatibility SLL's

- VSE exception model

- VSE event model

- VSE finalization

- VSE delivery model

Issues

- Subclassing: e.g. Collections

- RDB access conversion

- File protocols - VW protocols

- External API - DLLCC based

VSE Compatibility: GUI Logic

Framework: VisualWorks + VSE widgets & events

VSE frameworks in compatibility SLL's

- ApplicationCoordinator

- ViewManager

- LayoutFrames

ObjectShare widgets will be ported

Issues

- Event name mapping

- GUI tool conversion

VSE Compatibility: GUI Tools

GUI Tool derived from VW Canvas Tool

- Application Model

- Window Specs.

Significant restructuring of code required to convert from
VSE GUI frameworks to Jigsaw frameworks

Conversion required for GUI editing

Conversion process different for:

- WindowBuilder Pro

- Parts

- Hand crafted

VSE Compatibility: GUI Conversion Goals

Most WindowBuilder and hand crafted GUIs execute with minimal modifications using compatibility SLL Utility for automated conversion of 90-95% of WindowBuilder Pro screens.

Rest may require some manual intervention

Conversion utility to translate Parts layouts

Linked Logic remains issue

Develop conversion tools in collaboration with customer partners