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CSE775 - Distributed Objects
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CONTENT REVIEW

COURSE TOPICS

- Win32 Programming
- COM
- .Net Controls
- WPF
- WCF
- Final Projects

WIN32 PROGRAMMING

- Kernel objects
  - Handles
  - Threads, synchronizers, windows, MappedFiles
- API
- Windows programming
  - STA model starts here
  - Interprocess communication with SendMessage and PostMessage
- Take-away:
  - Effective, tedious, can easily build upon this platform, especially with C++

COM MODEL

- Effective as component model
- Weak object model
- Easy interprocess communication
- Basis for Office, IE, Visual Studio, Media Player
- Effective interop with .Net types
  - Even better with the introduction of dynamic type
- Complex, changes to recipe often break builds
- Take-away:
  - Effective, limited, sometimes excruciating for developers, ubiquitous in Windows

.NET CONTROLS

- Wrappers around windows and ActiveX controls
  - Controls supplied with Windows, Visual Studio, IE
  - Component
    - Toolbox and design time support
    - Not visible on form
  - UserControls – composite control
  - Controls – user implements OnPaint
  - Derived Controls – add to existing functionality
- Take-away
  - By far the easiest Microsoft technology to use
  - Broad support for windows platform

WPF CONTROLS

- Eliminated Component model in favor of rendering parse tree
  - Uses templates
    - ControlTemplate, DataTemplate
    - Vector Graphics
    - DirectX core processing
  - Silverlight also adopts this model
- Take-away
  - Extraordinarily effective support for GUIs
  - Coverage is superb: forms, navigation, layout, drawing, animation

WCF

- Supports IPC, Network Programming, Web Programming under one common model
- Very effective plugin architecture
  - Bindings, policies
- Behaviors define settings, error handling
- Declarative and Programmatic definition
- Lots of Framework support for building both services and clients.
- Take-away
  - Extremely flexible, broad scope: ipc, networks, web
  - Lots of support for different needs: activation, security, …

FINAL PROJECTS

- Chance to explore things not discussed in class
- Projects broadened definition of object distribution
  - From GUI containers and networked machines
  - To Cloud, Mobil, Web, REST, cross platform
  - Look at new paradigms
- Take-away
  - Nice to have student presentations
  - Too early to tell how well this will work
  - Would like to have your feedback