WatchDog: A Software Visualization Tool for Monitoring of Wide-area Power Systems

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WatchDog

- Visualization software intended for streaming and analysis of real-time PMU data
- Written in Python using Tkinter and PyGame modules
  - Provides 6 fps with 512 color resolution
- Currently using real-time data from historic disturbances in WECC
  - Events ranging from June of 2000 to October of 2004
Current Modules

- Phase Angle Contour Videos
- Power-angle Curves
- Modal Analysis through ERA
- Inter-area response Visualization
- Statistical Analysis/baselining
- Streaming real-time data from 7 PMU stations
  - Grand Coulee, Keeler, John Day, Colstrip, Malin, Vincent, Devers
- Soon to have 3D baselining plots
Main Interface
Lab Setup

- Running on standard desktop machine
- Linux environment
  - Ubuntu 10.04
- Viewed on widescreen display
Scrolling Waveforms
P-Delta Curves
Statistical Information
PMU Constrained Placement
WECC Algorithm Application
Constrained Placement Algorithm
Thank You