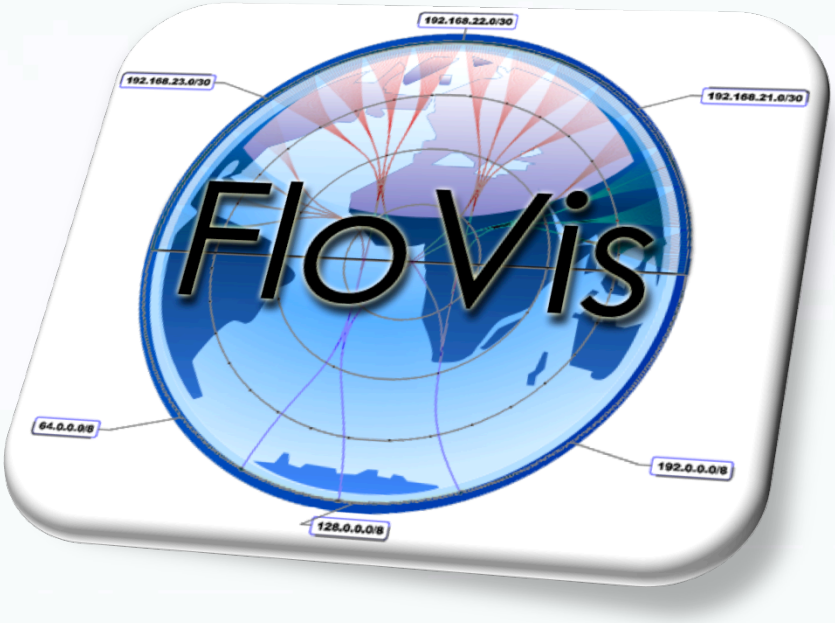


Summary

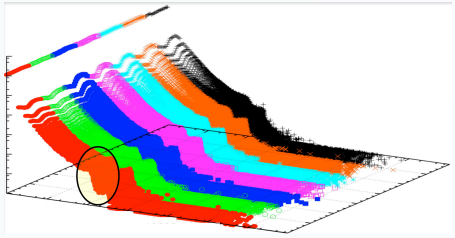
Stephen Brooks, Carrie Gates, John McHugh

Conclusions

- FloVis is an extendable framework for network security visualizations
- Integrates with SiLK
- Currently FlowBundle, NetBytes Viewer, Activity Plot

Benefits

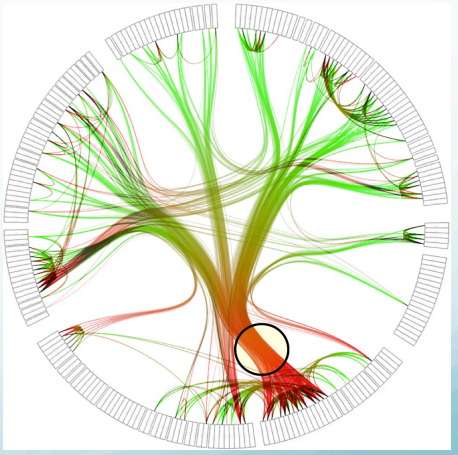
Gain Insight



- Better understand own network
- Recognize when something has changed
- Know when 1 org is different from others

Easily detect new patterns / attacks

- Take advantage of people's strengths
- Do not waste people's time



Future Work

- Further integration with SiLK (possible toolbox)
- Always looking for new visualizations
  - Metrics for prioritizing visualization development
- Test on other networks
- User feedback and user studies
- Develop open source release of framework and visualizations

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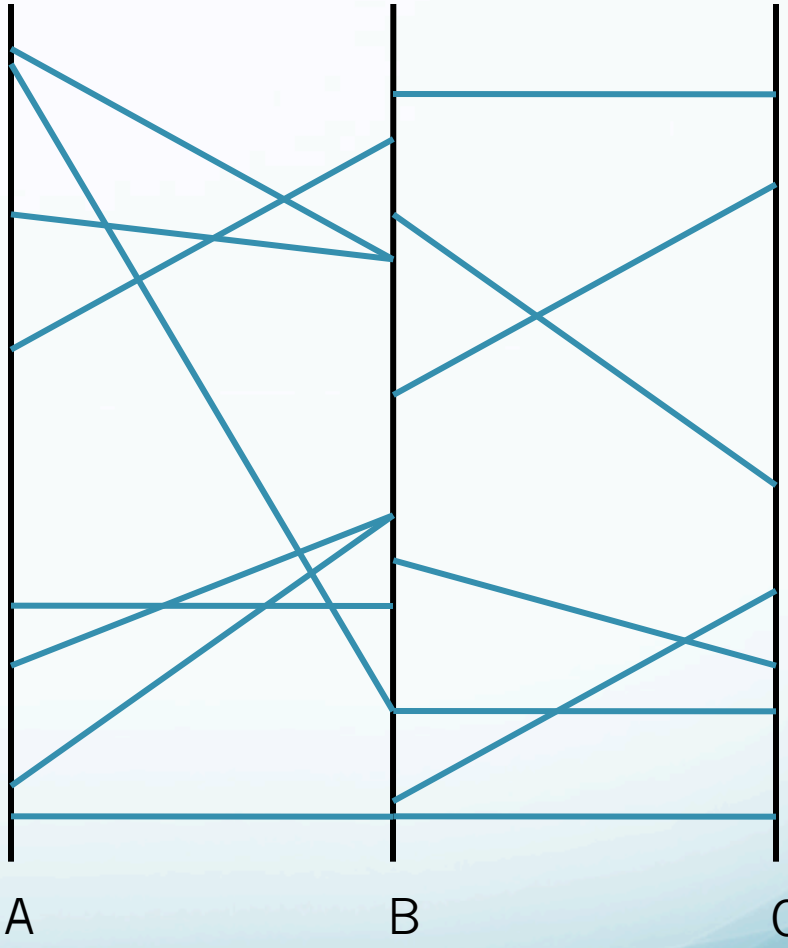
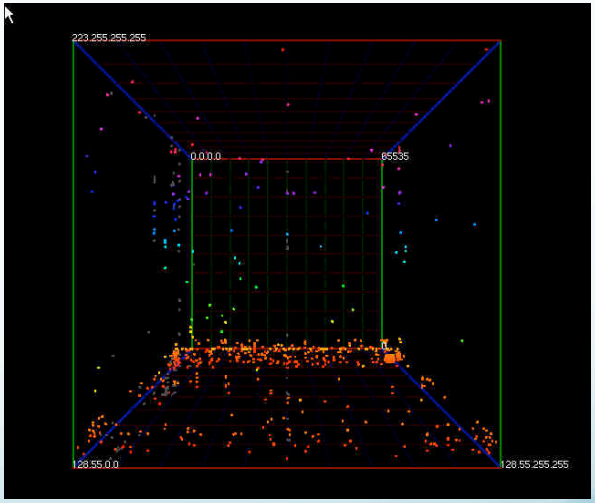
Related Work: Connection Based

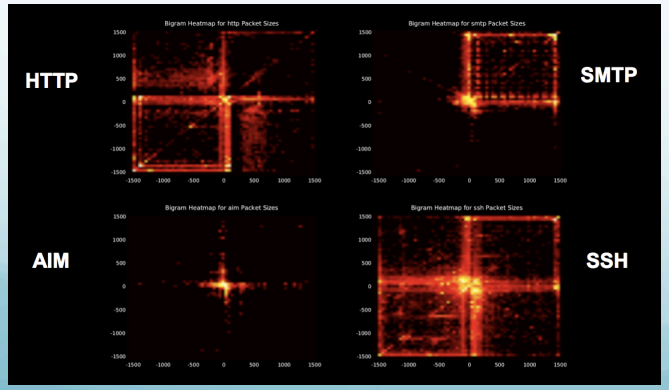
- Rumint/VisFlowConnect
  - Parallel axes graphs
- VISUAL
  - Modified node-link graph
- Flamingo
  - 3D quad tree based parallel axis
- TNV
  - Focus + context connections
- SeeNet
  - Geographical node-link graph.



Related Work: Matrix/Scatter plot

- 2D/3D matrices mapping IP octets/ports/packets:
  - Koike *et al.* in their 2005 paper "Visualizing Cyber Attacks Using an IP Matrix"
  - Spinning Cube of Potential Doom (Lau)
  - PortVis (McPherson *et al.*)
  - NVisionIP (Lakkaraju *et al.*)
  - Heatmaps (Wright *et al.*)





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