WiGis: Web-Based Interactive Graph Interfaces

Brynjar Gretarsson, John O'Donovan, Svetlin Bostandjiev, Tobias Höllerer

Real-time interaction and dynamic probing are powerful, helpful tools for analysts.

Lead Investigatior: Tobias Höllerer

Our approach:

Make interaction feasible for large-scale data.

Use interaction to predictably explore the data

Make these technologies available to every web user
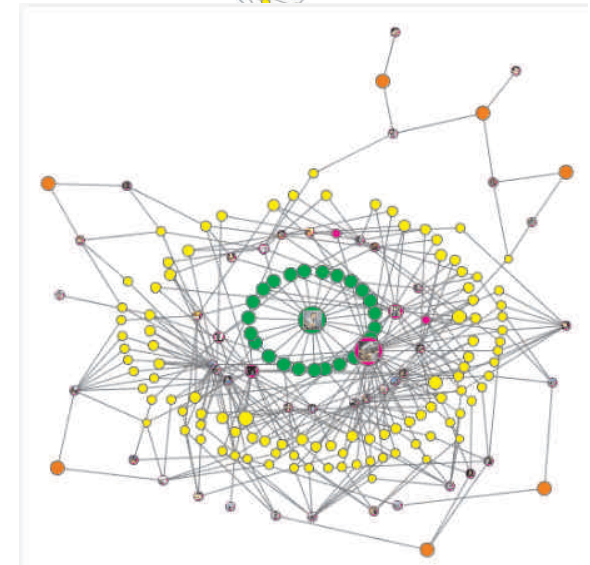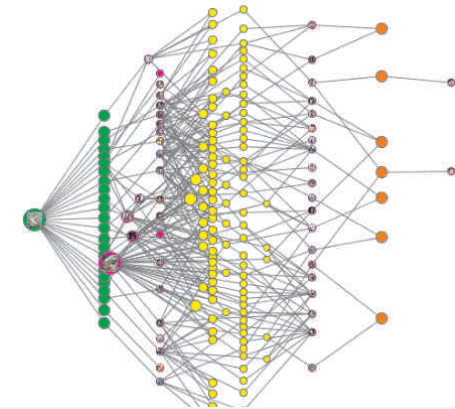
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Key Ideas

- Manage computationally expensive interactive Visualizations.

- Client-side web browsers have varying computational resources.

- Heavy processing can be performed remotely.

- Ajax Techniques used to provide a seamless transition between client and server side processing.

- **Large scale interactive graph visualizations can be provided NATIVELY in a web browser**

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Collaborations Sought:

Researchers / Analysts who have large-scale network data and desire a visual / interactive analysis component.

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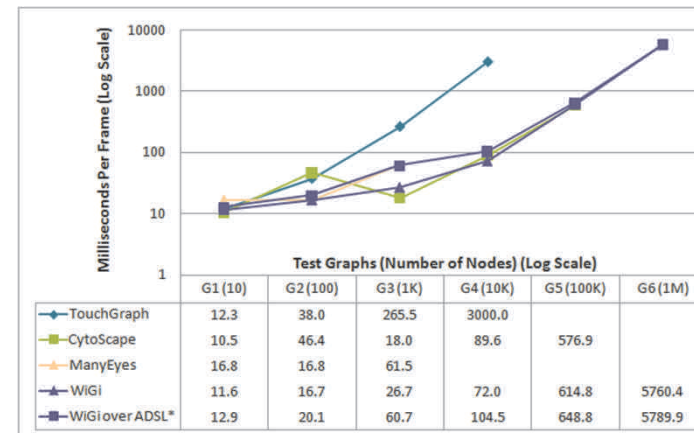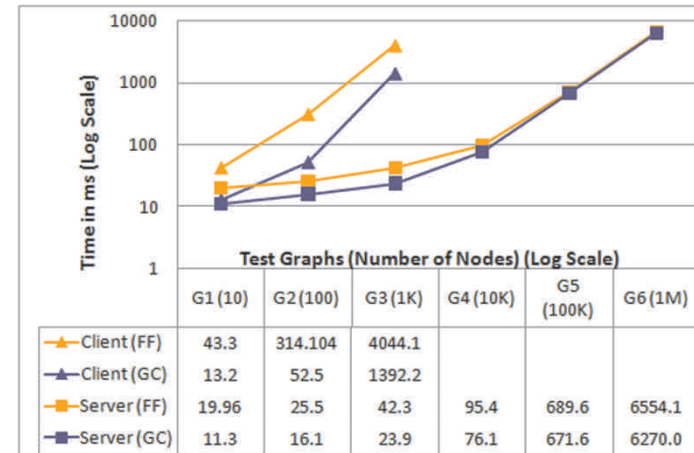# *WiGis*: Web-Based Interactive Graph Interfaces

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Interactive visualization of 1M+ nodes.

Scalable by an order of magnitude more than standard web-based graph visualization tools.

Fully Integrated with KDD-Blackbook 2.8.1

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Time in ms (Log Scale) vs **Test Graphs (Number of Nodes) (Log Scale)**

	G1 (10)	G2 (100)	G3 (1K)	G4 (10K)	G5 (100K)	G6 (1M)
Client (FF)	43.3	314.104	4044.1			
Client (GC)	13.2	52.5	1392.2			
Server (FF)	19.96	25.5	42.3	95.4	689.6	6554.1
Server (GC)	11.3	16.1	23.9	76.1	671.6	6270.0

Milliseconds Per Frame (Log Scale) vs **Test Graphs (Number of Nodes) (Log Scale)**

	G1 (10)	G2 (100)	G3 (1K)	G4 (10K)	G5 (100K)	G6 (1M)
TouchGraph	12.3	38.0	265.5	3000.0		
CytoScape	10.5	46.4	18.0	89.6	576.9	
ManyEyes	16.8	16.8	61.5			
WiGi	11.6	16.7	26.7	72.0	614.8	5760.4
WiGi over ADSL*	12.9	20.1	60.7	104.5	648.8	5789.9

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