

## 4<sup>th</sup> Year Project Idea – Visualising Huge Networks in a Browser

Currently, VI (Visual Investigator, a SAS product) lets users view a network of entities in the system to see how they connect (for example a few people, phone numbers and addresses). This works perfectly for a few entities, with useful information being shown clearly. However, with potentially millions of nodes, the network no longer shows any useful information - just a mass of nodes - and becomes unusably slow (VI is a web app and both processing power and memory are hard limits which, depending on network size, will easily be hit).

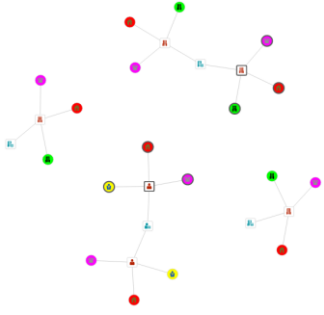
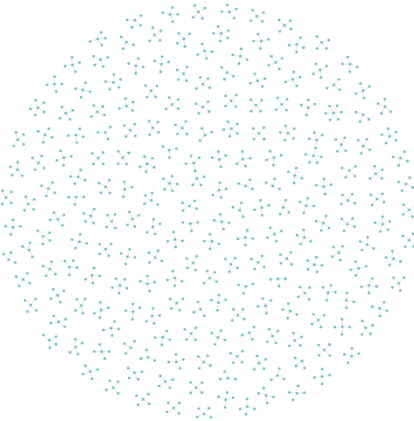
Ideally the solution would make the data useful to look at, as currently seeing hundreds thousands of nodes is meaningless and also, if possible, make it work at a reasonable speed.

As you can see from the pictures below, the network starts out clear and load times are instant, but it soon becomes both fairly meaningless and really slow. If there was a way to both speed up the loading times of huge networks, and make them convey meaningful information to the user, this would be very useful.

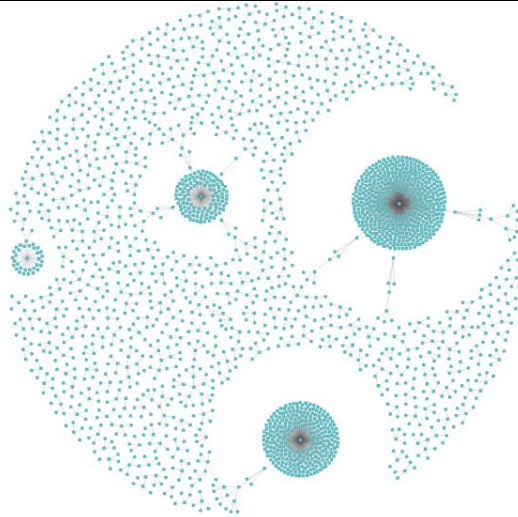
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Outline:

- Describe the problem as you have seen in industry – e.g. scaling networks to that size without a different approach will simply not work from a browser rendering point of view, plus it extremely intensive from a server point of view
- Research possible solutions
- Propose a few approaches
- Prototype as a standalone app
- Write up a conclusions and recommendations

30 nodes Load Time - <1 second	
1000 nodes Load Time – 10 seconds	

2500 nodes  
Load Time – 30 seconds



7500 nodes  
Load Time – 5 minutes

