

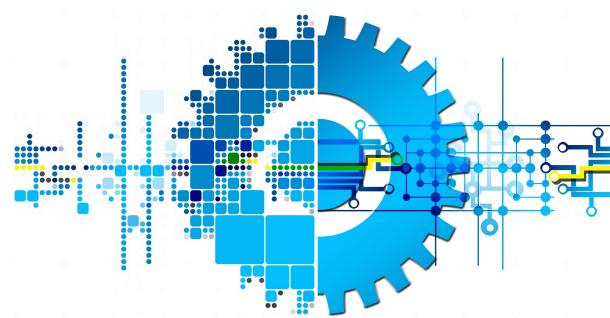


## T6 - Organizational Structure

T-ORG-600

# Organizational Architecture

Bootstrap



1.0



*The Enron scandal, publicized in October 2001, eventually led to the bankruptcy of the Enron Corporation, an American energy company (...). In addition to being the largest bankruptcy reorganization in American history at that time, Enron was cited as the biggest audit failure. (...)*

*Enron was formed in 1985 by Kenneth Lay after merging Houston Natural Gas and InterNorth. Several years later, when Jeffrey Skilling was hired, he developed a staff of executives that – by the use of accounting loopholes, special purpose entities, and poor financial reporting – were able to hide billions of dollars in debt from failed deals and projects. Chief Financial Officer Andrew Fastow and other executives not only misled Enron's Board of Directors and Audit Committee on high-risk accounting practices, but also pressured Arthur Andersen to ignore the issues.*

*Enron shareholders filed a \$40 billion lawsuit after the company's stock price, which achieved a high of US\$90.75 per share in mid-2000, plummeted to less than \$1 by the end of November 2001. The U.S. Securities and Exchange Commission (SEC) began an investigation, and rival Houston competitor Dynegy offered to purchase the company at a very low price. The deal failed, and on December 2, 2001, Enron filed for bankruptcy under Chapter 11 of the United States Bankruptcy Code. Enron's \$63.4 billion in assets made it the largest corporate bankruptcy in U.S. history until WorldCom's bankruptcy the next year.*

*Wikipedia*

Let's investigate this massive fraud...

## SCRIPT

You will find with this file a vast database of executive emails leaked from Enron.

To analyse them, you must carry out a **script** that generates a plot file (easily plottable as a graph), containing all the exchanges between the protagonists and takes 2 arguments:

1. [MANDATORY] a SQL file containing the email database,
2. [OPTIONAL] a target email address that must appear in the represented emails. If this argument is missing, all email addresses must be taken into account.

```
Terminal
~/T-ORG-600> ./organization enron.sql 'tana.jones@enron.com' > result.dot
```



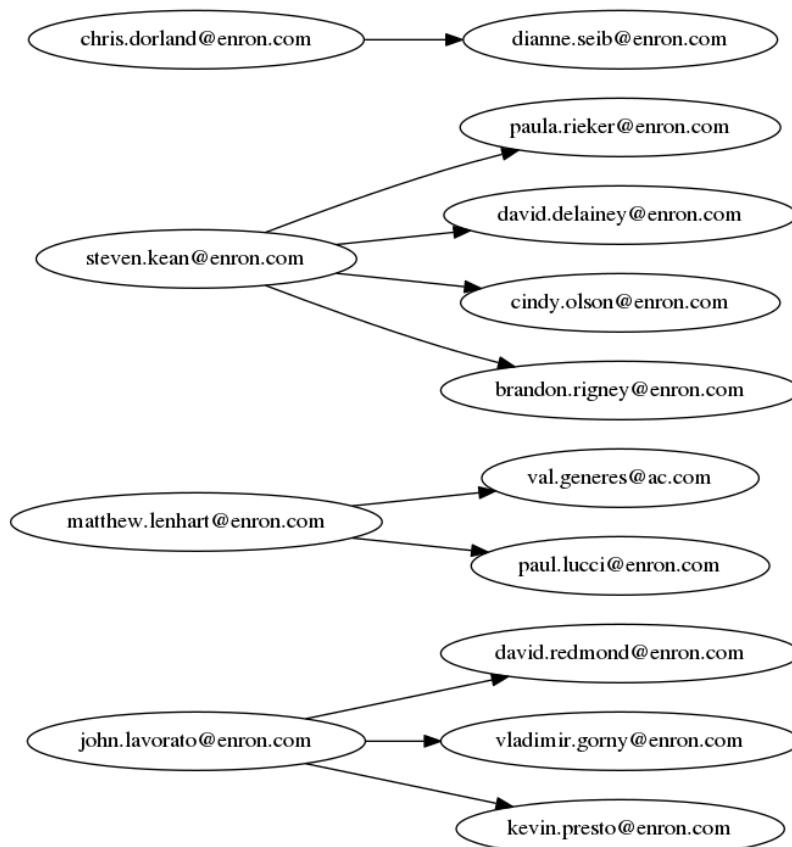
The dataset is HUUUUGE!

You can add optional arguments (with correct default values) such as begin and end dates, or the maximum number of results you want ; otherwise you'll be quickly overwhelmed by the massivness of the base.



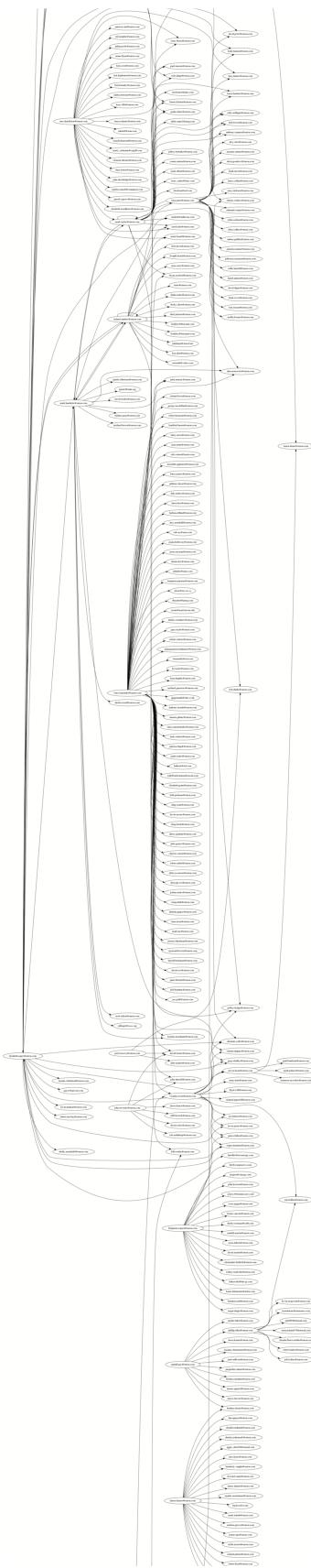
Here is an example of a dot file and a corresponding graph:

```
digraph {
    graph [overlap=scale, splines=true, rankdir=LR];
"john.lavorato@enron.com" -> { "david.redmond@enron.com" "vladimir.gorny@enron.com" "kevin.presto@enron.com" };
"matthew.lenhart@enron.com" -> { "val.generes@ac.com" "paul.lucci@enron.com" };
"steven.kean@enron.com" -> { "paula.rieker@enron.com" "david.delainey@enron.com" "cindy.olson@enron.com" "brandon.rigney@enron.com" };
"chris.dorland@enron.com" -> { "dianne.seib@enron.com" };
}
```



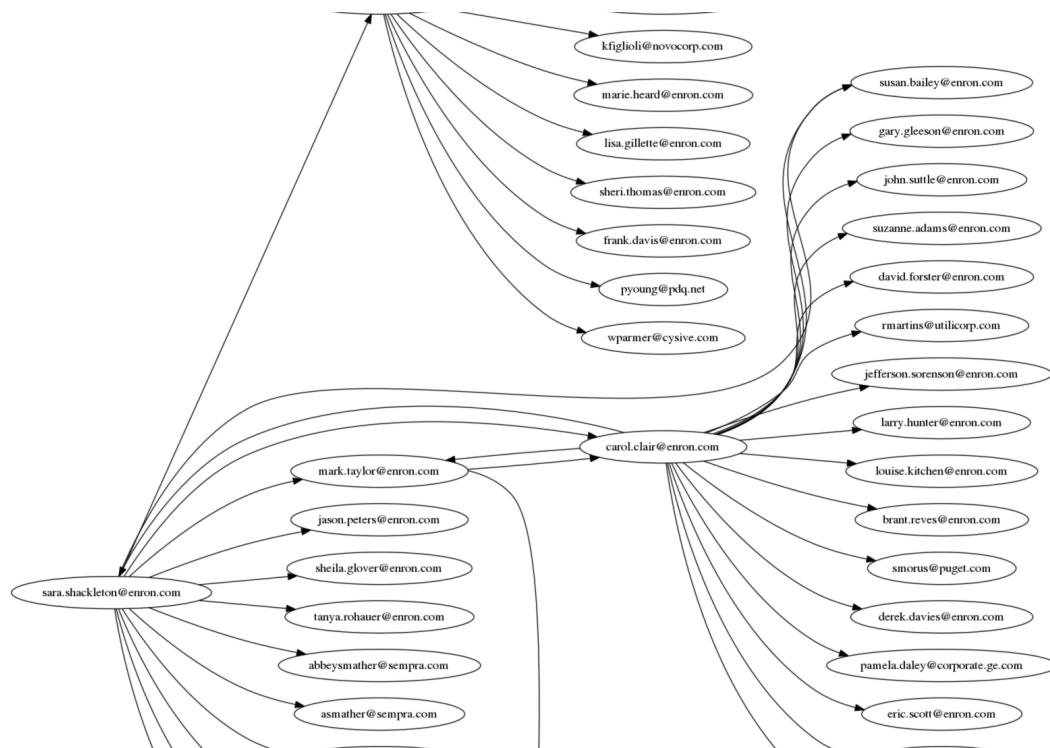
If you want a dynamic example, check out [this link..](#)

## ANALYSIS



We have extracted some parts of the graph generated from year 2000. Try to analyse (centralization of information, privileged relationship, bottleneck, roles,...) them and answer the questions:

- What could we guess about the organizational profile of the company?
- What kind of responsibility may have the person on the very left? On the very right?
- Can you spot a bottleneck?
- What can you say about the way information travels down?
- About exchanges?
- What could you guess about the daily routines of employees in this company, at that time?



Sara Shackleton seems to be a stake-holding player. What was her position in 2000?  
Carol Clair was one of Enron's lawyers in 2000. Could you have guessed it?



What can you say about the rather strange graph (zoomed from a 15000-email-generated graph) on the right.

Try to reproduce this graph with your own script.  
And finally, search for relevant parameters for your script, so that you could make interesting analysis of the outcoming graphs.



Want some more? Check [this](#) out.

