

Network map system

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30th September 2004

Network maps

3 network load map systems being made in Trondheim

Nemo autozoomed geographical maps (UNINETT)

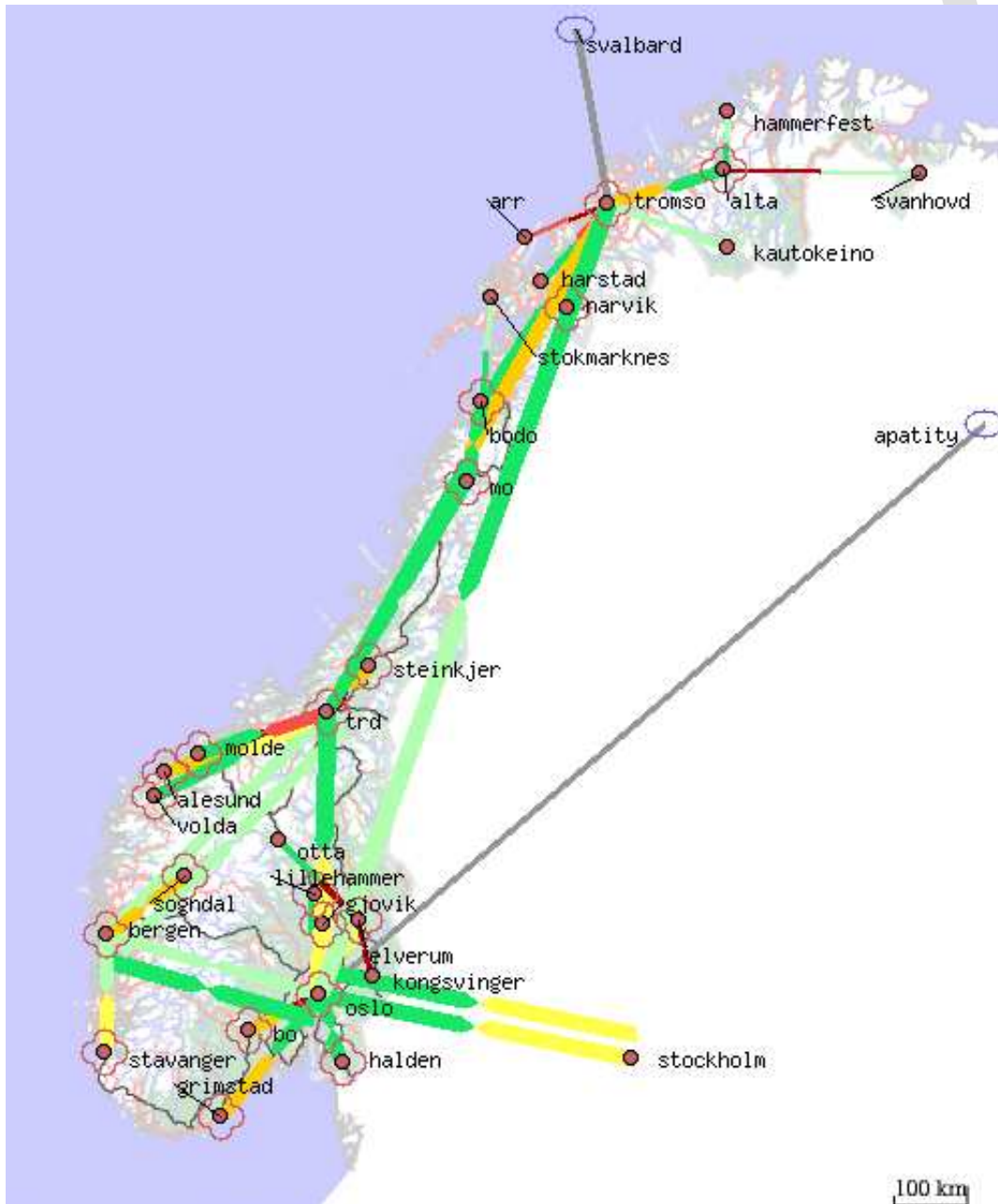
- menus with URLs
- animation of any point or link load

Zino schematic load maps - tgif (UNINETT/NORDUnet)

Nav autodetected campus topology (NTNU)

The Network Map System -

- has a set of tools that generates clickable WWW-maps from a topology description
- has a set of clients to show maps - geographical or topological
- may use geographical maps from images or vector-maps(SOSI)
- scales by automatically and manually choose zoomed maps
- may attach a series of URL's on menus to each network element
- may show network parameters like link load or CPU load with colors and sizes (weather map)
- depends on consistent naming to attach traffic statistics to the map



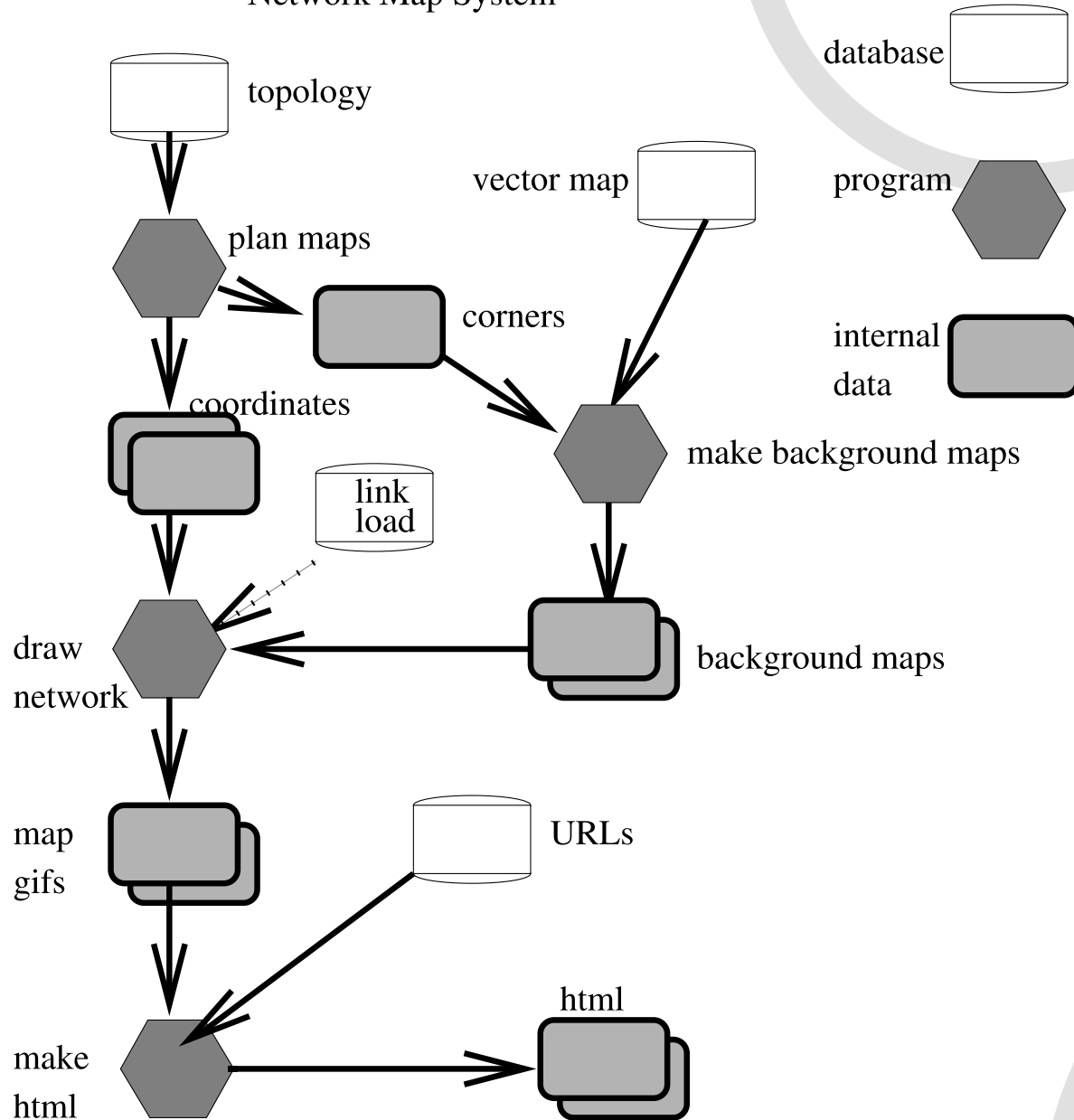
Clients

html standard html with map images and client side imagemaps for references and zooming

menumap client side java applet that show a map with menus of URL's over points, lines and maps uses server side script to generate next map

nemo clientside java program that access SQL-database for maps and traffic statistics do local zooming and drawing of maps animates network characteristics like link and cpu-load

Network Map System



The nemo tool

Java client using SQL to access database with topology and measurements

Present stats as link size and color, point size and color in resolution 5min/hour/day

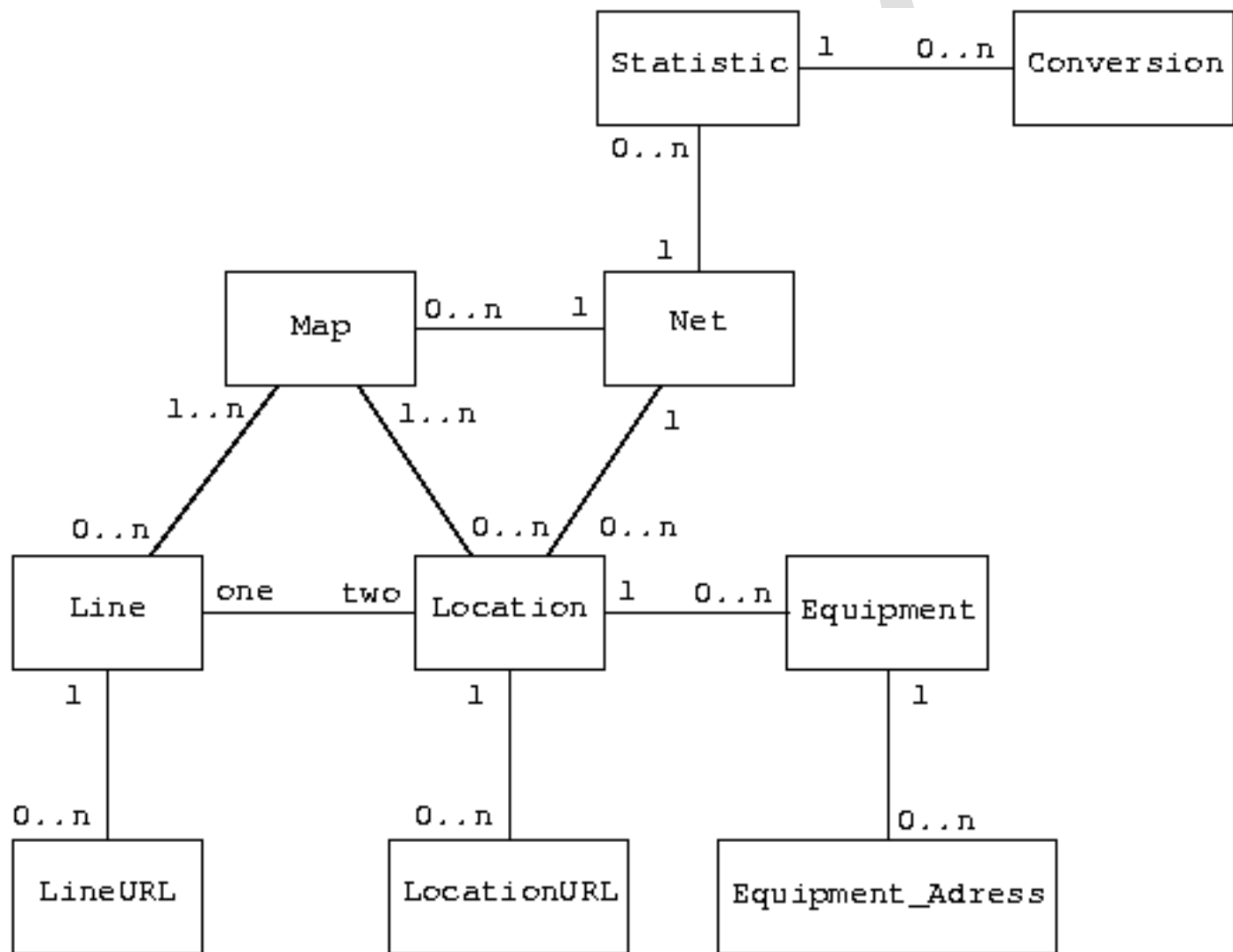
Does animation on maps - 2-5 fps

Zooms to detailed maps - aggregates more routers in one point

Metadatabase describes measurement and mappings

Backend tools feed database with measurements

Has link data, router cpu, ping, netflow data in database



The basic tools

- extract topology information from our customer database (arsrapp, sql)
- break the complete topology down to suitable maps(kartluk)
- generate geographical and topological background images(kartgrunnlag)
- map the link load to colors on the map(kartlastgif)
- draw a network map on a background image with configurable icons(kartgimage)

Basic web

- generate references for the maps based on database info(karturl)
- make html for showing and zooming maps(kartmap)
- aid the user with navigation and menus with a Java-client(menumap)
- import Zino and Genplot SNMP data(lastnuh)
- cgi to generate html with loadmaps (last)

The implementation

- Perl-scripts with Unix filter style behaviour
- Flat files for intermediate formats (coordinates, URLs)
- Postscript files carry transformation info
- Cgi-scripts in perl
- MenuMap is browser-embedded Java
- Nemo is standalone java using java webstart
database is Postgresql

Data model - coordinates

Coordinates file per map

PUNKT type navn sone koordinat1 koordinat2 (karttekst)

LINJE type navn punkt1 punkt2

- sone = UTM => koordinat north east

- sone = GIF => koordinater x y

- UTM = WGS-84

URL-file one per system

INFO menu-text

LINJE name URL

Corners file list of maps with corners - per system (.omriss)

name,vector-map,type,selections,corners

- type=SOSI | GIF