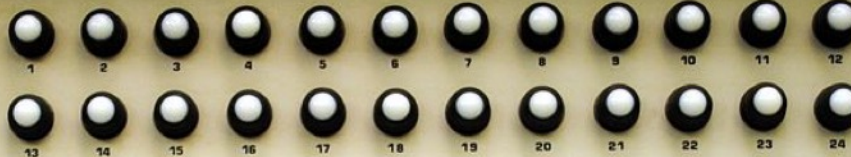


ON
OFF
HALT
INH
W.D.T.
AUTO
RSTRT
MEMORY
PRCTC



IMP STATUS PANEL

INTERFACE MESSAGE PROCESSOR

Developed for
the Advanced Research Projects Agency
by Bolt Beranek and Newman Inc.



T1 | T2 | T3 | T4 | F | I | A | C | PI | ML | EA | DP | MP | P

Evolution of NREN architectures

06/05/2018

OFF

POWER

PFH

SENSE

REGISTER

CLEAR

FETCH

P+1

RUN

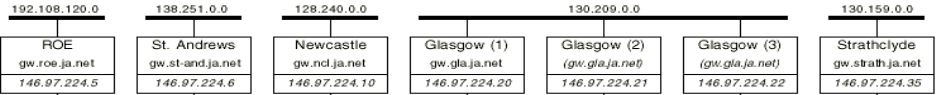
OPERATION

S1

- » Rob Evans, Jisc (UK)
- » Jac Kloots, SURFnet (NL)
- » Jørgen Qvist, NORDUnet (NO, SE, FI, DK, IS)
- » David Wilde, AARNet (AU)
- » Garreth Malone, HEAnet (IE)
- » John Moore, Internet2 (US)
- » Patty Giuntoli, ESnet (US)

97.x.y
C Site
e.ja.net
7.112.y

**The JANET IP Service
Logical Layout
March 1992**
version 18/3/92.1 by Sam Wilson, EUCS

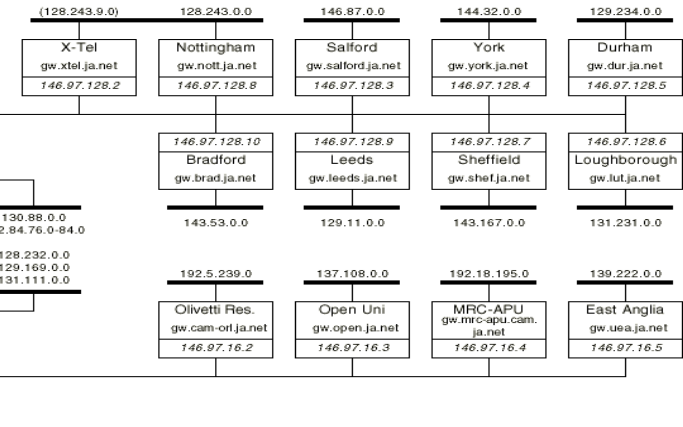
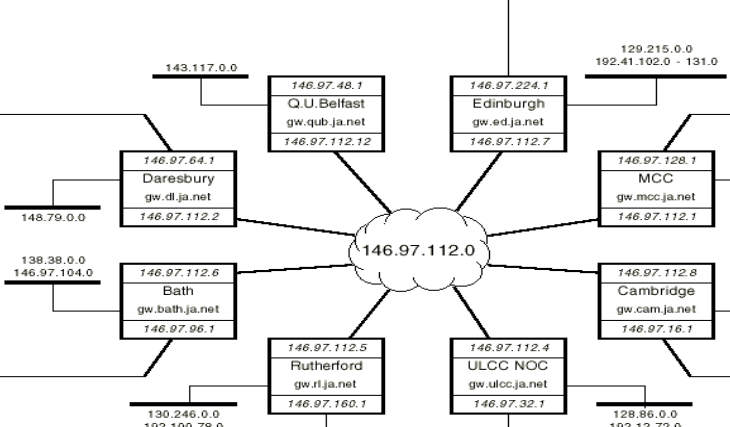
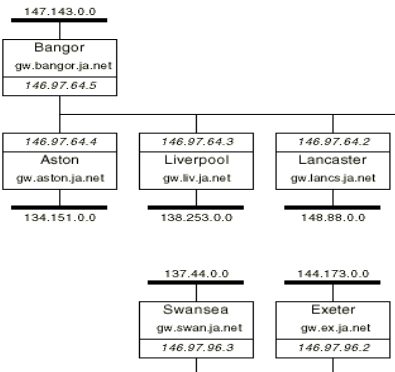


Site router with backbone interface address

Site Name gw.site.ja.net 146.97.x.y

Site LAN(s) with network number(s)

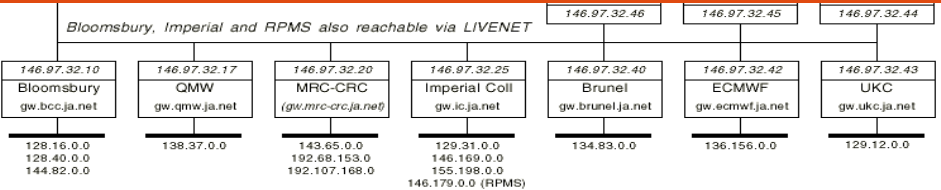
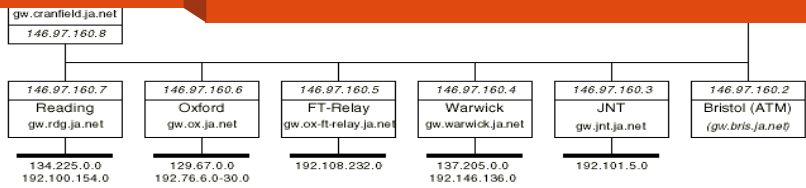
123.45.0.0



06/05/2018

Re-designing the access and aggregation layers of Janet

Rob Evans. Chief network architect, Janet.





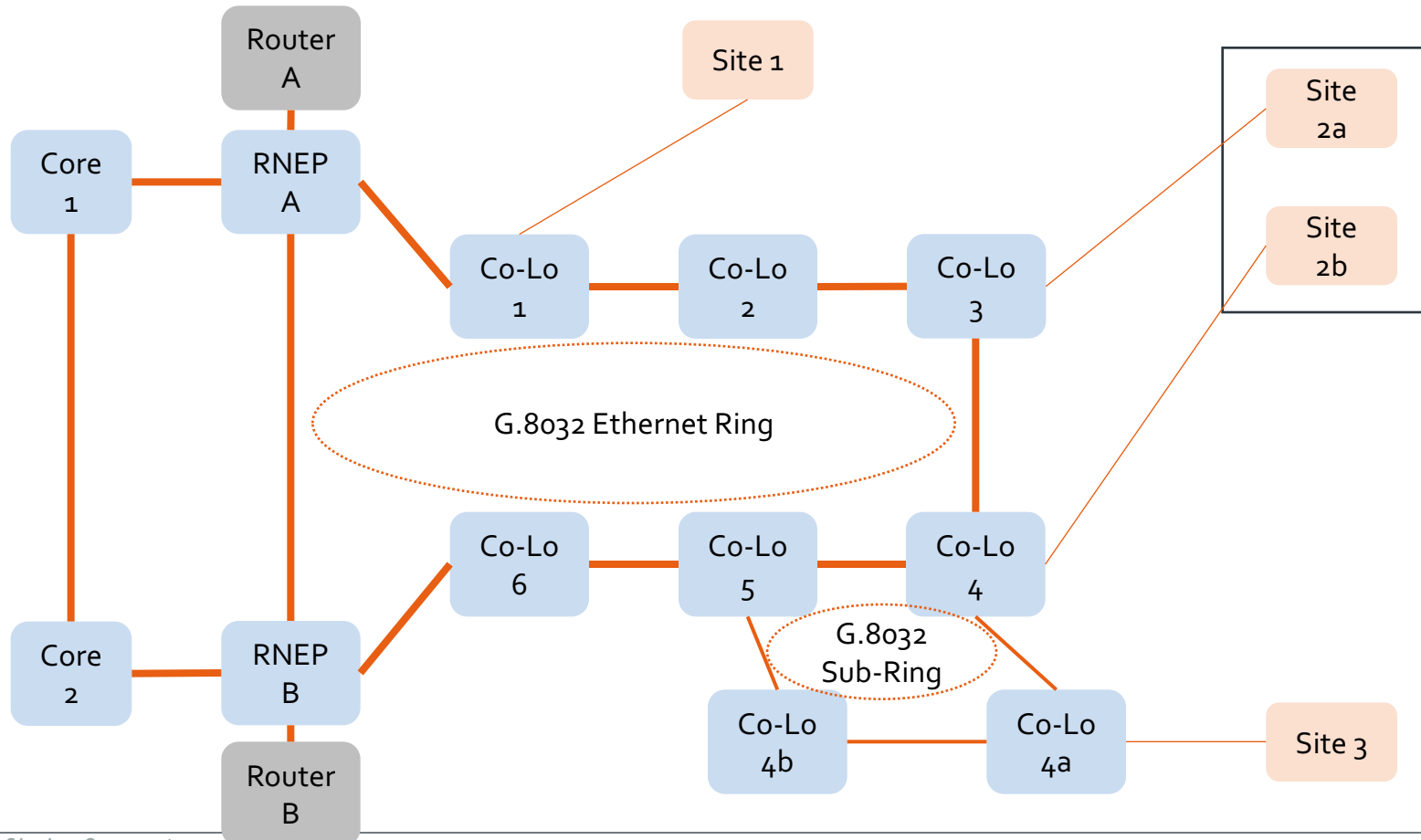
Map reproduction courtesy of the Norman B. Leventhal Map Center at the Boston Public Library

- » Different architectures around the country
- » Lots of leased lines for site access – difficult to scale easily
- » Dark fibre for access prohibitively expensive
- » Out-of-hours PoP access

- » Outsourcing
 - › Converting on-site datacentres to teaching space
 - › Moving to shared datacentres procured by Jisc
 - › Moving to Azure
- » Scalability
- » Reliability



- » Regulated infrastructure provider – Openreach
 - › Formerly part of BT
- » Did not want to give access to it's dark fibre
 - › Mandated to do so by regulator; prepared to launch it
 - › Appeal succeeds at 11th hour
- » Halfway house
 - › Buy a 10G circuit, get access to DWDM filter ports
- » Dark fibre from other providers where possible



- » Automation
 - › Provisioning between existing core and new regional systems
- » SDN
- » NFV
- » More on-net datacentres
- » More local content delivery
 - › It's not a large country, but still...