

CS Group



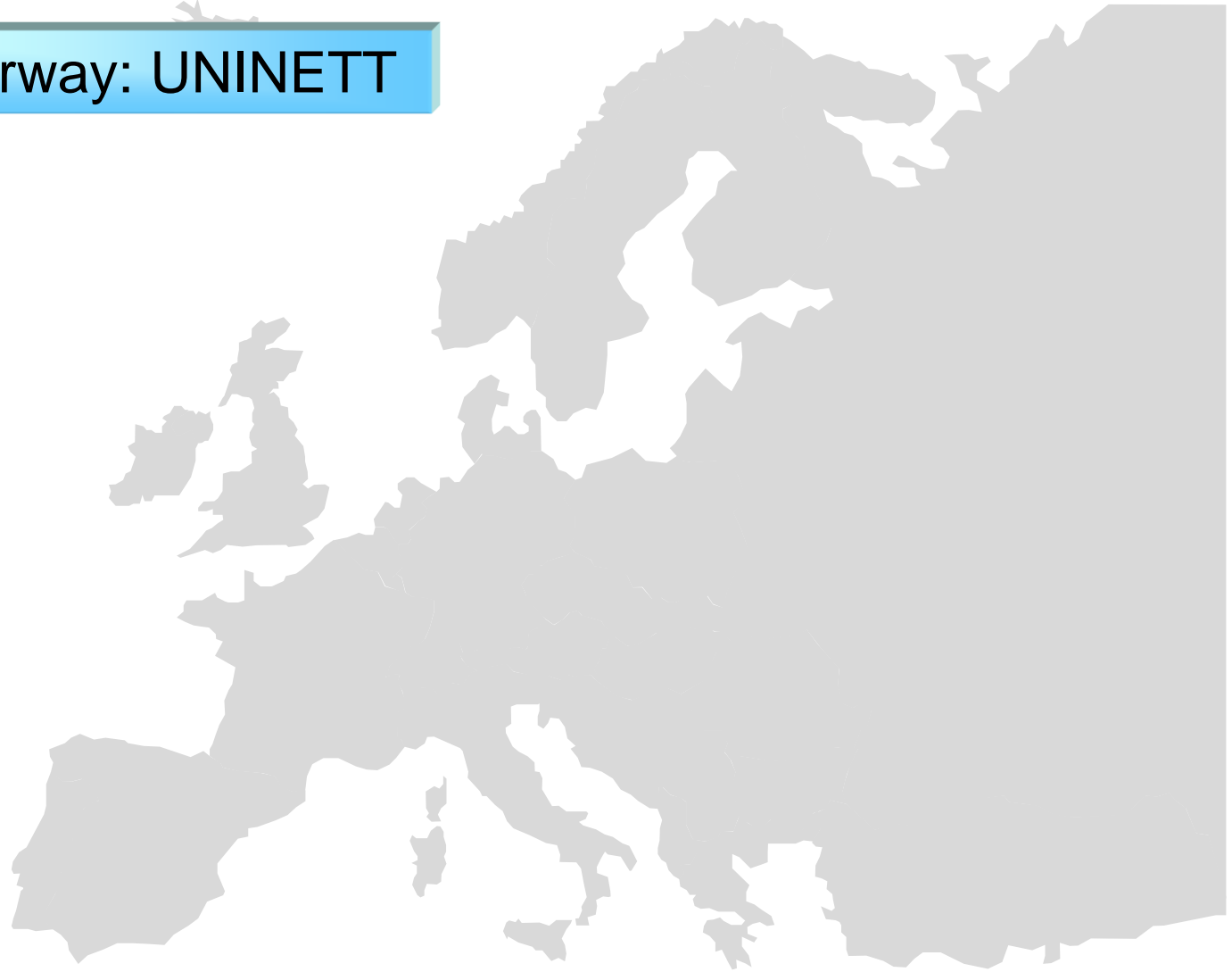
and the Internet

Anecdotes

The emergence of A&R Networks Europe

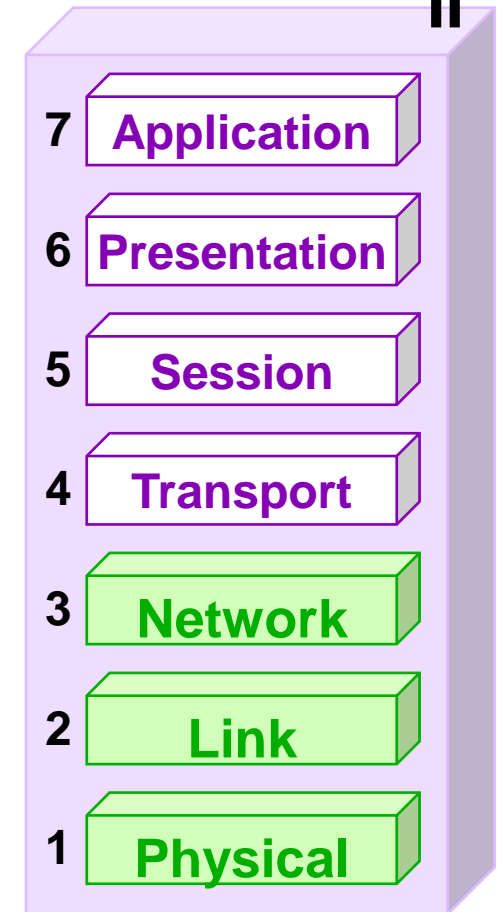
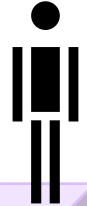
78

Norway: UNINETT

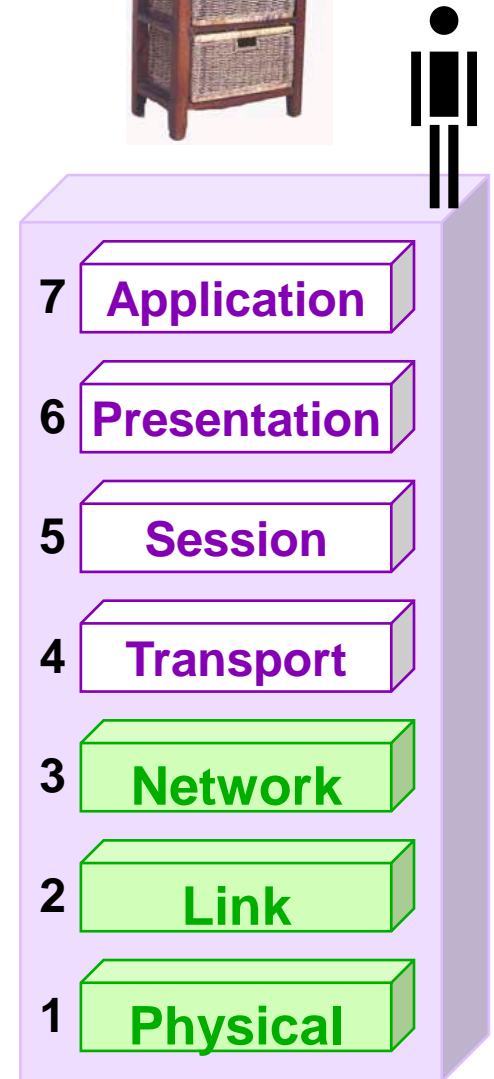
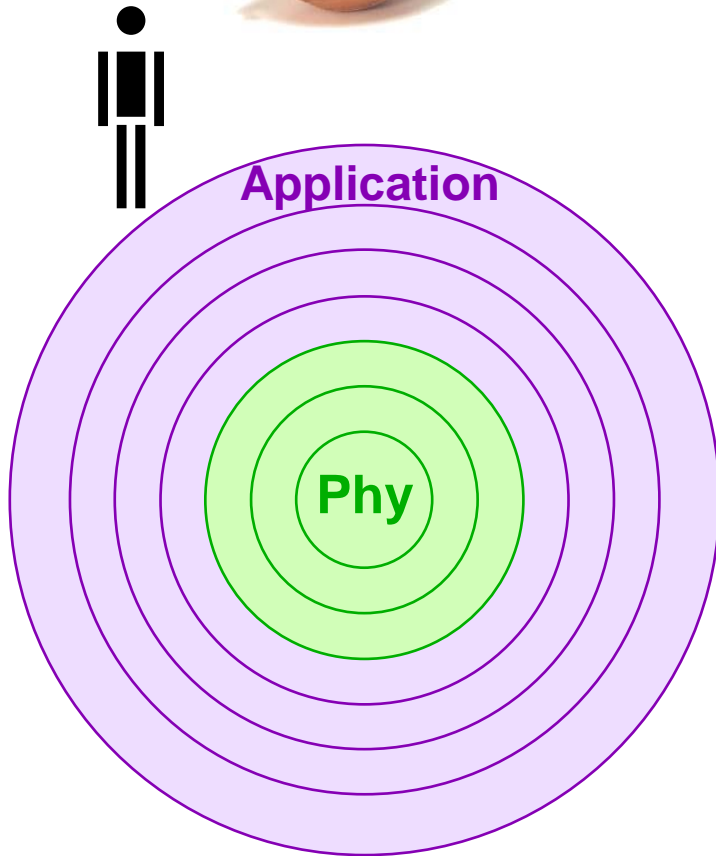
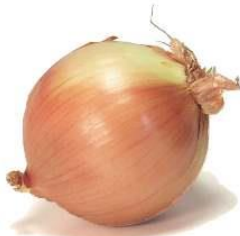


Layering principle

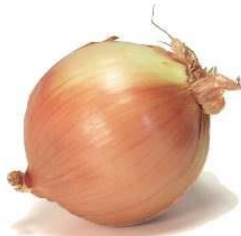
- Functions clustered into layers
- Each layer has only two neighbors
- Changing one layer => changing two interfaces only



On Metaphors



**Graphical Presentation from
Norway, 1976**



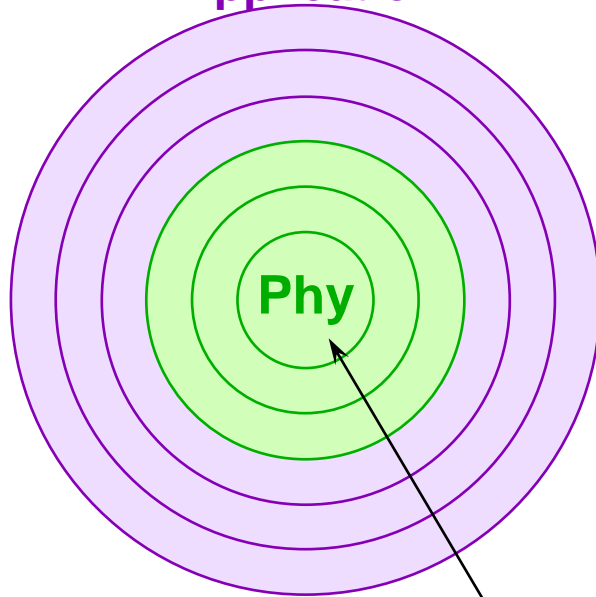
Perception



Peripheral

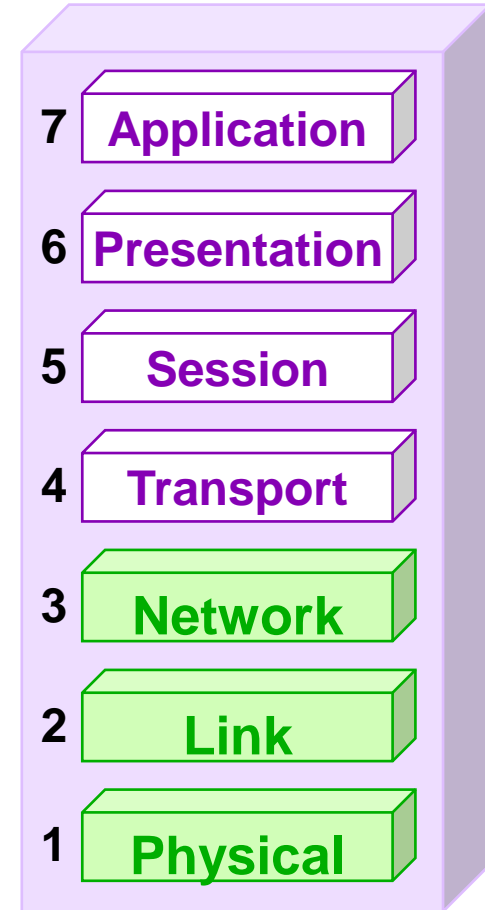
High Level

Application

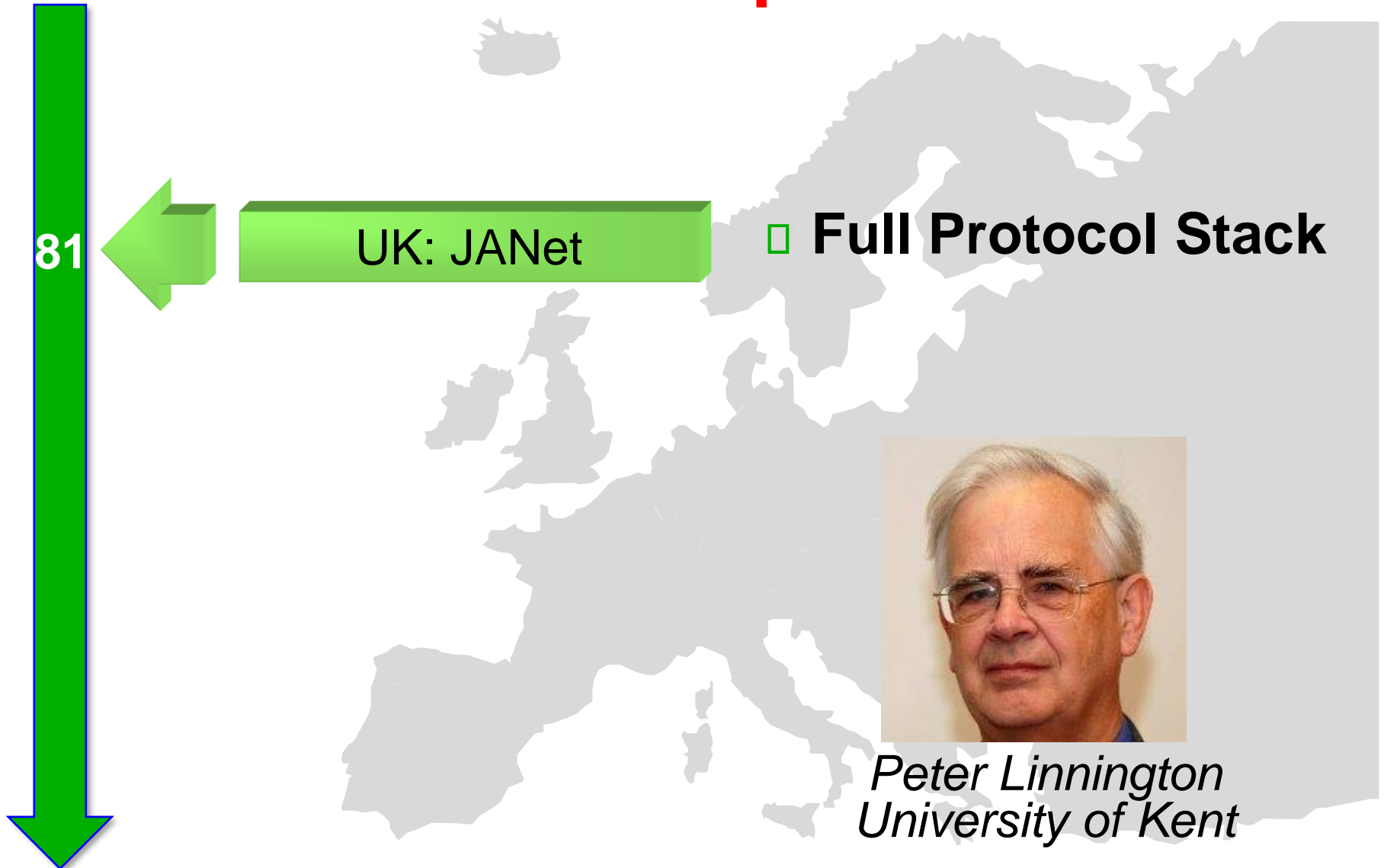


Core

Low Level



The emergence of A&R Networks Europe



Peter Linnington
University of Kent

Driving on the Left



Driving on the Left

81

UK: JANet

- British standard for email addresses

bob.smith@UK.AC.UCL

Country:

UK

Domain:

Academic
Community

University
University
College of
London



backfire

Driving on the Left

81

UK: JANet

□ Argument: bob.smith@UK.AC.UCL

“*Follows telephone numbering hierarchy*”
(country code, area code,)

**shooting
yourself
in the
foot**



Driving on the Left

81

UK: JANet

□ Reason: bob.smith@UK.AC.UCL

“*Follows **telephone** numbering hierarchy*”
(country code, area code,)

□ Response of the community

“*Precisely, this is **not** telephone, this is **mail***”

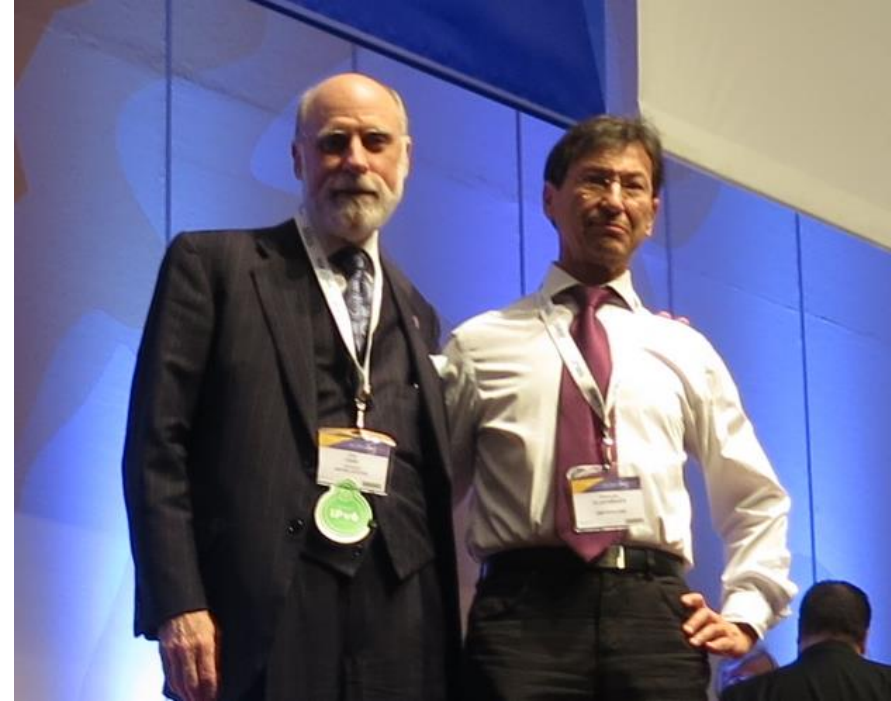


Att. Mr Robert Smith
University College of London
United Kingdom

CS and World-wide structures

87

Creation of
CCIRN*



May 88
I convene the 2nd meeting in Geneva

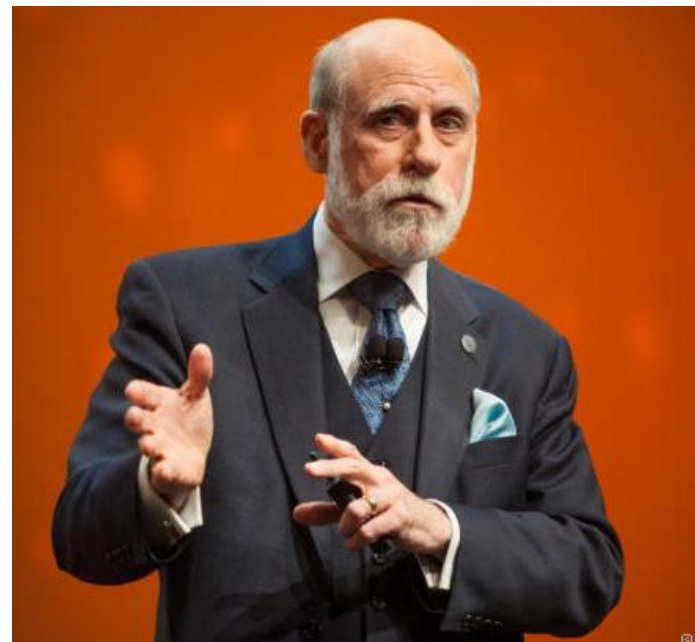
* Coordinating Committee for Intercontinental Research Networks

Abandon of power

88

Oct 88
Special **CCIRN** Meeting,
West Virginia, USA

Focused on
IP Coordination



□ Vint Cerf:

“We wish you, the Europeans, to set up a structure to allocate IP addresses in Europe. It is not good we keep doing it for you.”

Abandon of power

88

Oct 88
Second CCIRN* Meeting,
West Virginia



- My two European colleagues:
“Sorry, we do not foresee any future for IP in Europe.”
- I reassured our American colleagues:
“CERN will look after it”

Europe: the Protocol War rages

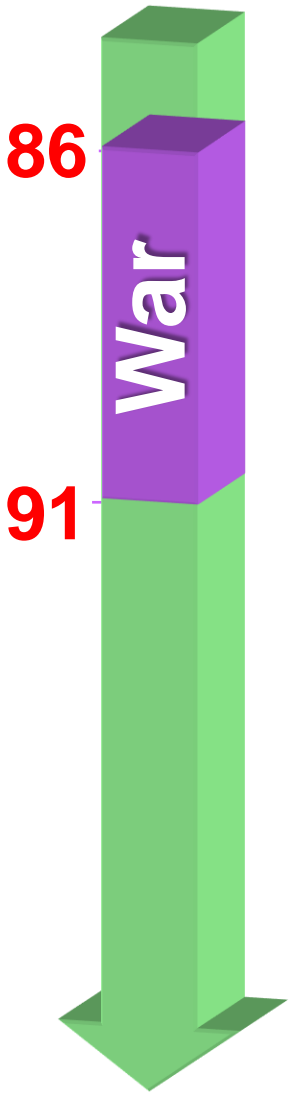
86

TCP/IP

Proponents and
opponents fight each
other

- European Commission, most countries strongly opposed to **TCP/IP**
- They support the **OSI** technology

Europe: the Protocol War rages



TCP/IP Proponents

- Austria
- Ireland
- Netherlands
- Nordic Countries
- *CERN*

OSI Proponents

- Germany
- Italy
- UK
- Switzerland
- *European Comm.*

CS Contribution to Internet Structures

88



Oct 88
Second CCIRN* Meeting,
West Virginia

88



Dec 88
Olivier and I call a meeting
at CERN to respond to
American proposal



Six people attended

- *Mats Brunel (SE)*
- *Rob Blokzijl (NL)*
- *Daniel Karrenberg (DE)*
- *Enzo Valente (IT)*
- *Olivier and myself (CERN)*

20 years later - Anniversary Celebration



Fluckiger

Karrenberg

Valente

Martin

Blokzijl

CS Contribution to Internet Structures

89

May 89
Rob chairs the 1st
RIPE meeting



92

May 92
Daniel formally
opens the
RIPE NCC



CS Contribution to Internet Structures

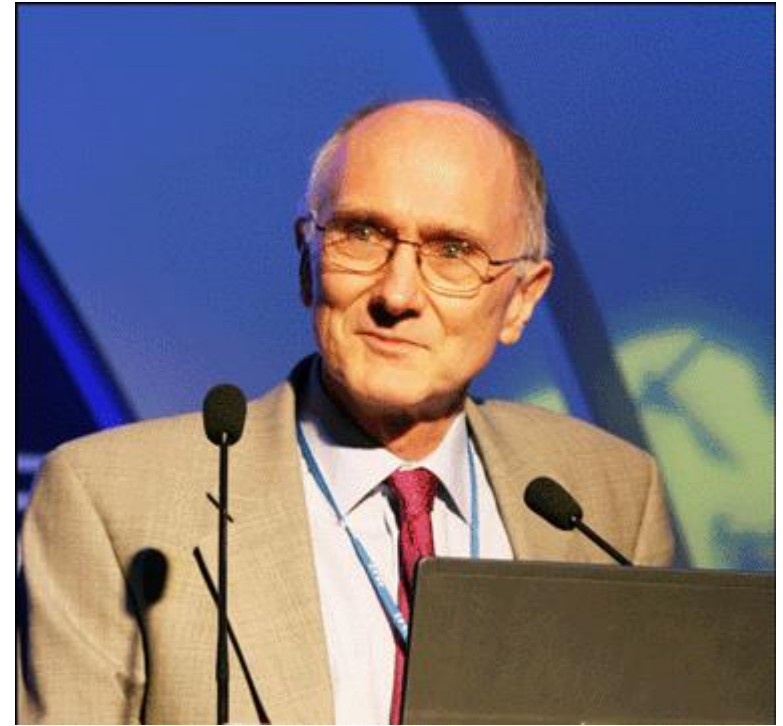
86



IETF
Created

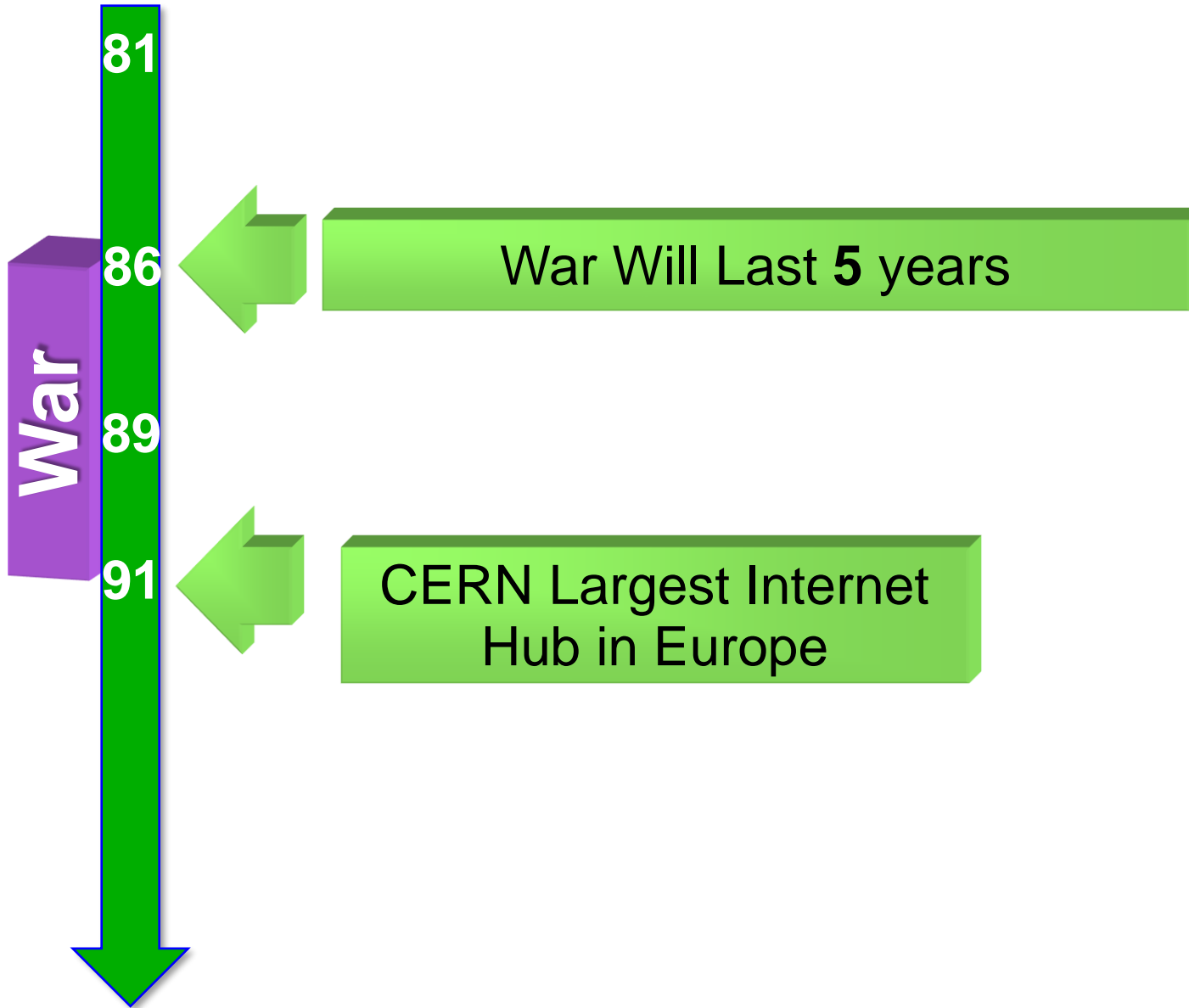
**Internet Engineering
Task Force**

The **fully open**
structure no develop
Internet Standards

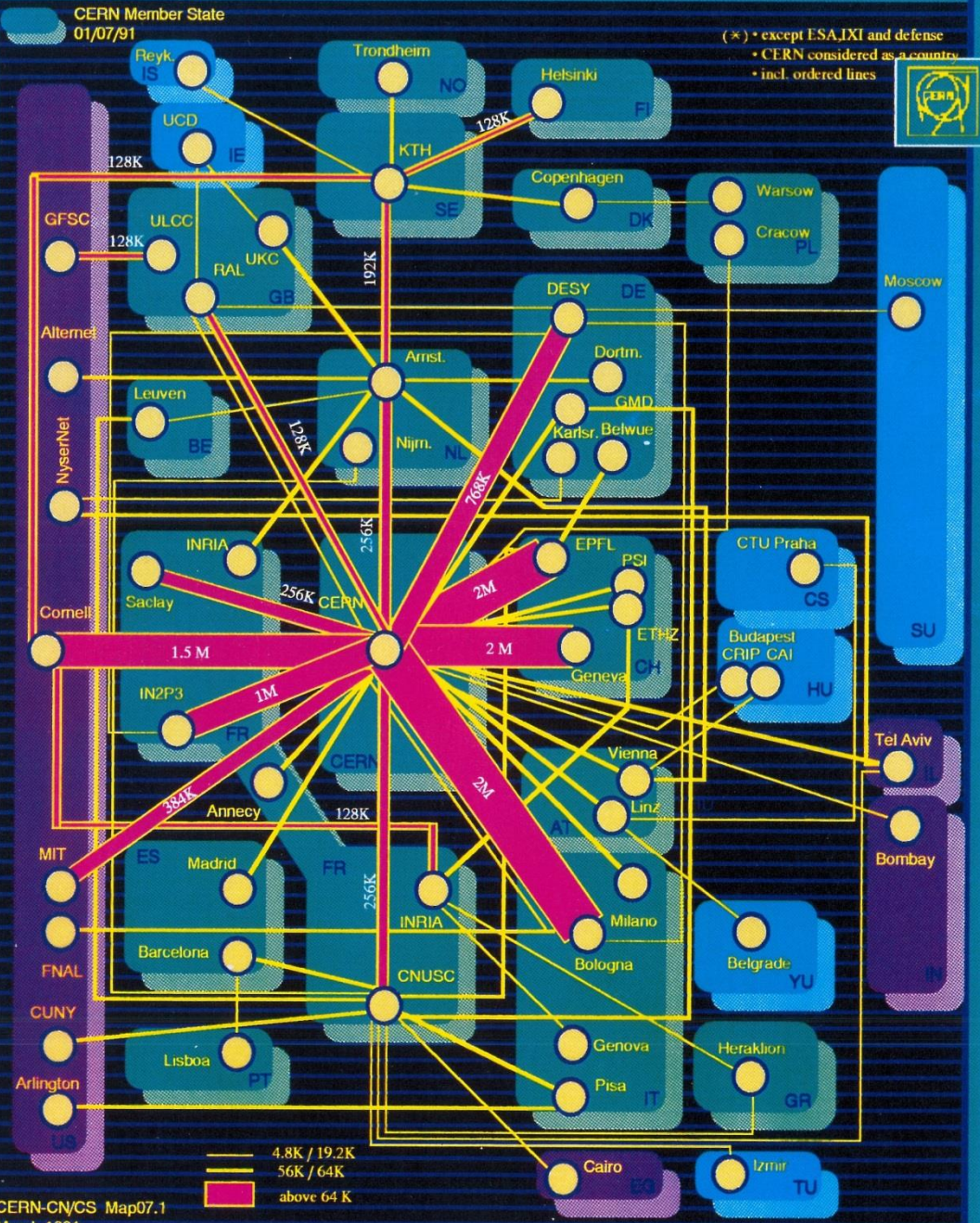


*Brian Carpenter, CERN
Chair 2005 -2007*

CERN – The IP Star



Main International Academic and Research Leased Lines in Europe (*)



CERN-CN/CS Map07.1
March 1991

(Prepared for CERN internal use from available information. Can be obtained from M.T.Monnet CERN-CN/CS)

The Dawning of the Web

90



TBL releases
First Web Server



93



Marc Andreessen
and Eric Bina
release
MOSAIC

First Graphical
Browser

University of Illinois



No Industrial Interest !!

... Until

94

Netscape



Jim Clark

founder, Silicon Graphics

In common?

- H. Hollerith
- S. Jobs
- B. Gates
- L. Page
S. Brin
- M. Zuckerberg



All outstanding Managers **and Technicians**

Industrial Interest?

94

Netscape



Jim Clark
founder, Silicon Graphics

A **Programmer**

**In IT business,
Understanding
Technology
is key to success**

**When paths
have crossed**

15
November
1994

Distribution of CERN WWW software

Francois Fluckiger (*fluckiger@vscn.cern.ch*)

Tue, 15 Nov 1994 17:37:15 --100

Group: WWW-Talk

Dear Colleagues,

Some of you asked about the conditions for the distribution of new versions of the CERN WWW Library of Common Code (libwww), the CERN Line Mode Browser (www) and the WWW HTTP Daemon (httpd).

The new versions will remain freely available, for general use, and at no cost.

The only change is that the material distributed will remain copyrighted by CERN. As a consequence, a copyright notice will have to appear in copies, but also, the rights of the users will be protected, in particular by preventing third parties to turn free software into proprietary software, and deny the users the rights to freely use the material`.

Distribution of CERN WWW software

Francois Fluckiger (*fluckiger@vscn.cern.ch*)

Tue, 15 Nov 1994 17:37:15 --100

Group: WWW-Talk

The proper copyright notice is being ratified and will be available in a few days.

We hope all those who have trusted CERN WWW software will continue to do so, and will appreciate that these conditions not only maintain the free distribution but better protect it.

Francois Fluckiger
Leader, WWW development, CERN

Group: WWW-Talk

On Nov 16 1994, 11:57, Tony Sanders <[sanders@...](#)> wrote:

- > We hope all those who have trusted CERN WWW software will continue to
- > do so, and will appreciate that these conditions not only maintain the
- > free distribution but better protect it.

No, I don't buy any such nonsense. It's either free or it's restricted.

Sounds more to me like they are going to start charging for access to the technology.

June

1994

David Williams



Head, CN Division

Tim Berners-Lee



Leaving CERN to the W3C, MIT

May
1993

Public Domain

930430

ORGANISATION EUROPEENNE POUR LA RECHERCHE NUCLEAIRE
CERN EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

STATEMENT CONCERNING CERN W3 SOFTWARE RELEASE INTO PUBLIC DOMAIN

TO WHOM IT MAY CONCERN

Introduction

The World Wide Web, hereafter referred to as W3, is a global computer networked information system.

The W3 project provides a collaborative information system independent of hardware and software platform, and physical location. The project spans technical design notes, documentation, news, discussion, educational material, personal notes, publicity, bulletin boards, live status information and numerical data as a uniform continuum, seamlessly intergated with similar information in

STATEMENT CONCERNING CERN W3 SOFTWARE **RELEASE INTO PUBLIC DOMAIN**

TO WHOM IT MAY CONCERN

local, regional or worldwide. The documents available on a web may reside on any computer supported by that web.

Public Domain

Declaration

The following CERN software is hereby put into the public domain:

- W 3 basic ("line-mode") client
- W 3 basic server
- W 3 library of common code.

CERN's intention in this is to further compatibility, common practices,

CERN relinquishes all intellectual property rights to this code, both source and binary form and permission is granted for anyone to use, duplicate, modify and redistribute it.

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Geneva, 30 April 1993

W. Hoogland
Director of Research

H. Weber
Director of Administration

copie certifiée conforme

fait à Genève le 03-05-93



Relinquish Property Rights

Free Software Movement in its infancy

Free Software
Foundation



**Richard
Stallman**

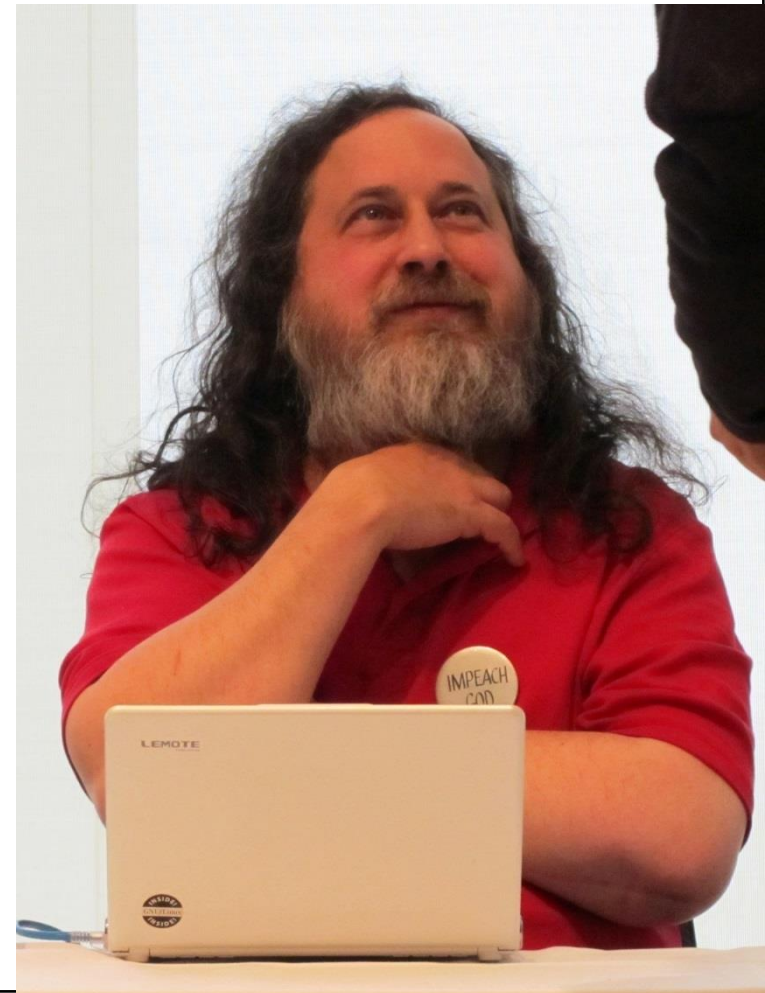
Berlin, 3rd August 2013



Free Software Principle

- Protect freedom by keeping ownership
- Grant **anyone** the
 - perpetual
 - irrevocable

right to use, copy,
distribute, **modify**



The 1st CERN Open Source Licence

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MIT
150

MIT
150

CONVENTIONAL



Vague but exciting ...

CERN DD/OC

Tim Berners-Lee, CERN/DD

Information Management: A Proposal

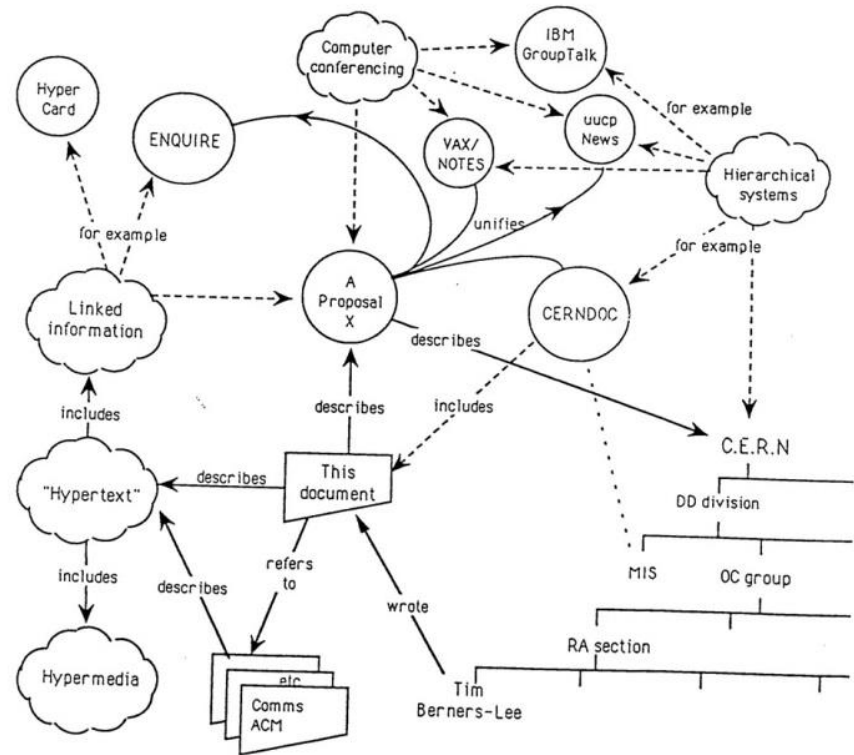
March 1989

Information Management: A Proposal

Abstract

This proposal concerns the management of general information about accelerators and experiments at CERN. It discusses the problems of loss of information about complex evolving systems and derives a solution based on a distributed hypertext system.

Keywords: Hypertext, Computer conferencing, Document retrieval, Information management, Project control



Thank You