



WILL THE v6 ADDRESS BE A UNIVERSAL IDENTIFIER ?

Louis Pouzin
EUROLINC



ITU-T



SELLING v6

- CORPORATE DECISIONS NOT MADE BY TECHNICIANS
 - *v4 WORKS, WHY CHANGE ?*
- ADDRESS SHORTAGE LIMITED BY NAT'S
 - *PROTECTION AGAINST INTRUDERS*
- ADDRESS MANAGEMENT POLICIES STILL UNCLEAR
 - *v6 SPACE SO LARGE, HOW TO USE IT ?*

Workshop on IPv6
Geneva, 22-23 June 2005



POTENTIAL v6 ADDRESS SEMANTICS



- APPLICATIONS DEAL WITH "OBJECTS", e.g.
 - *CUSTOMER, COMPONENT, PRODUCT, PROCEDURE, PRICE, CERTIFICATE, etc.*
- COULD v6 ADDRESSES MEAN OBJECTS ?
 - *e.g. CAR, ANIMAL, SPARE PART, SEAT ON AIRCRAFT*
- OBJECTS MOVE, *where to, where from*
 - *TRACEABILITY REQUIRED*
- RELATIONS BETWEEN OBJECTS
 - *MADE BY, TRANSPORTED BY, STORED IN, CHECKED BY*

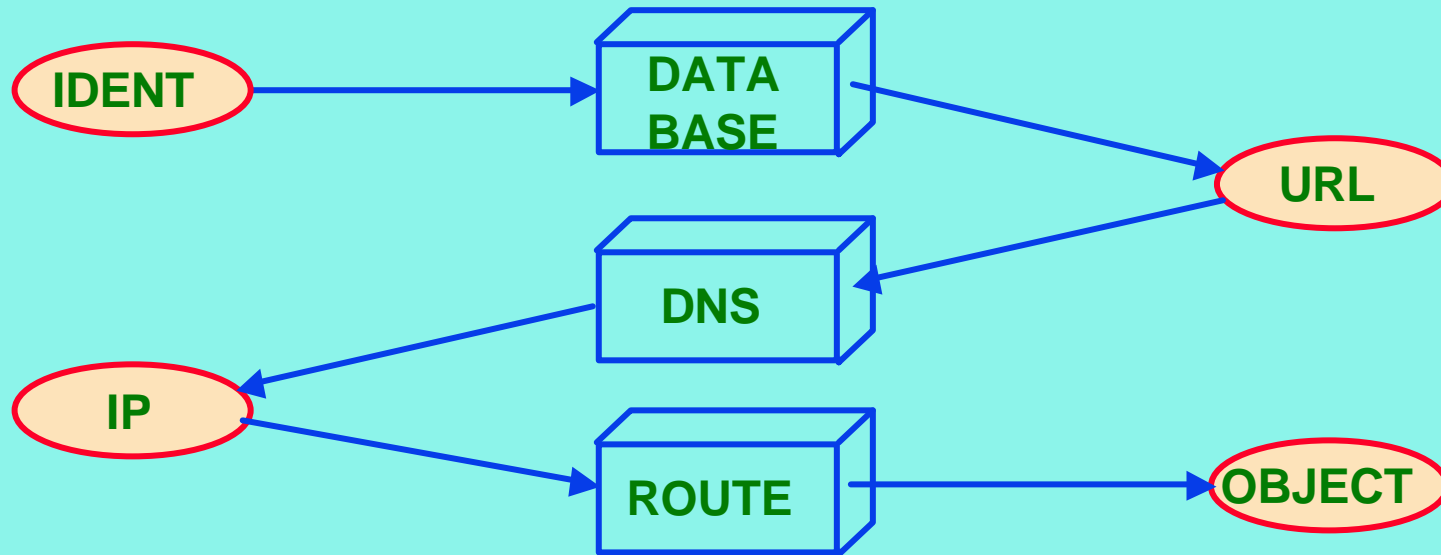


MANAGING OBJECTS

- DATA BASE SYSTEMS, access by IDENTIFIER
 - DATA, LINKS TO OTHER OBJECTS
- LINKS CAN BE:
 - INTERNAL DB LINKS (proprietary)
 - WEB LINKS (URL)
 - IP ??
- LINK MANAGEMENT
 - WITHIN A COMPANY
 - BY A COMMON TRADE STRUCTURE
 - BY COOPERATION OF VARIOUS OPERATORS



LINK RESOLUTION



■ WHAT IF IDENT WERE IP ?



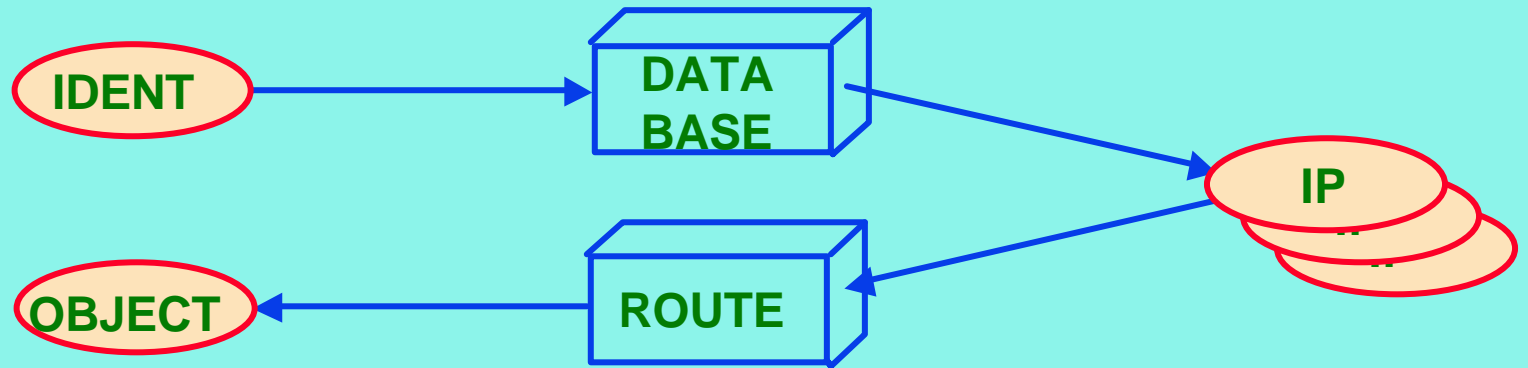
IP NOT QUITE IDENT



- IP ALLOCATION IN INTERNET NOT CONTROLLED BY CUSTOMER
- OBJECT LOCATION FIXED
- OBJECT REDUNDANCY
 - *IDENT -> MULTIPLE COPIES AND LOCATIONS*
- HARD TO PREDICT FUTURE IP NEEDS



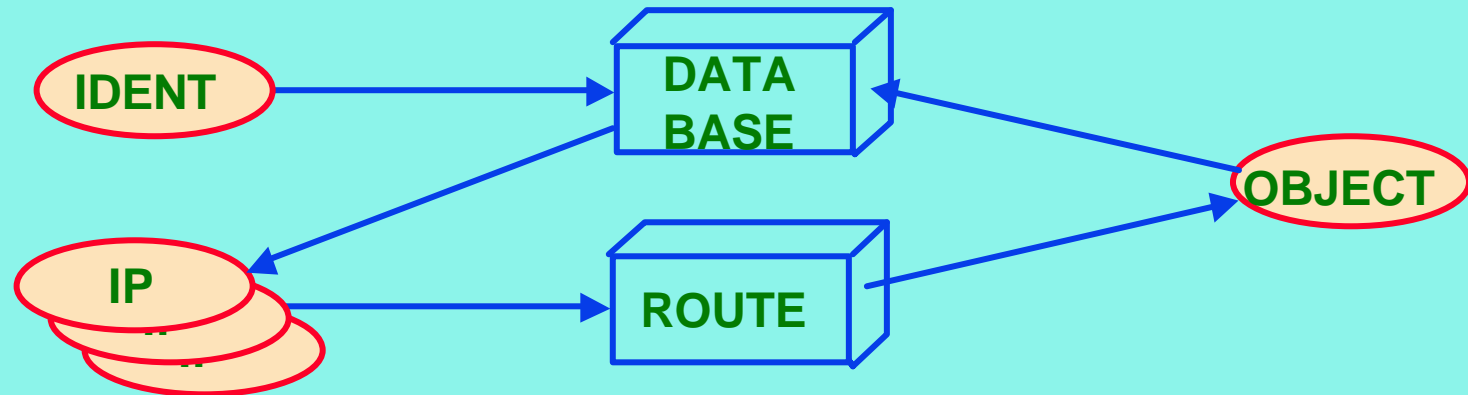
MULTIPLE COPIES



- OBJECT LOCATION FIXED



SMART MOBILE OBJECT

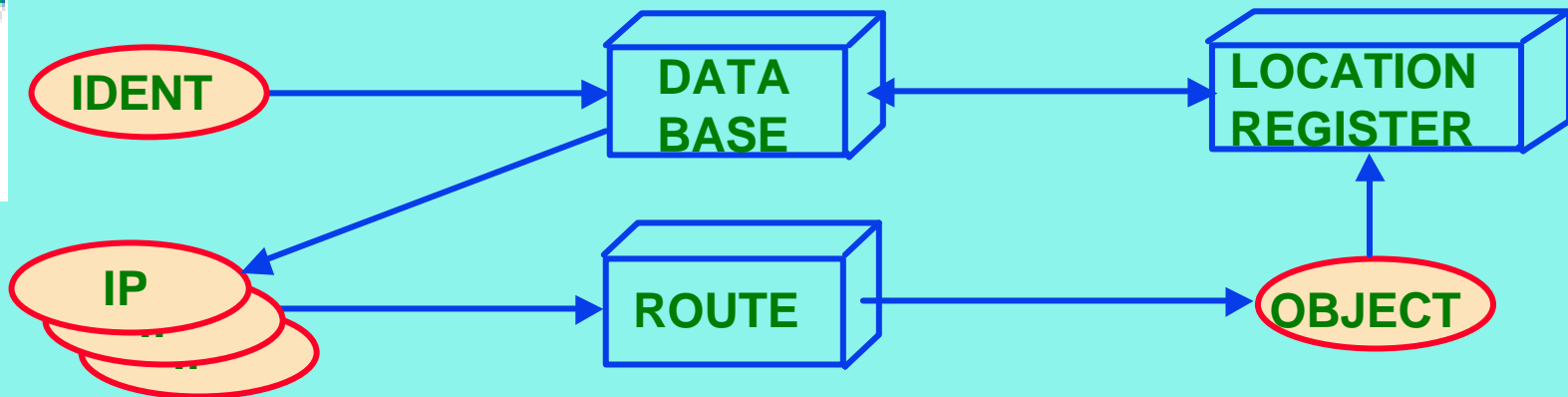


- OBJECT SIGNALS ITS LOCATION
- ROUTE MAY BE SELECTED BY DATA BASE
- WOULD IT HELP INTERNET ROUTING ?



LOCATION SIGNALING

- MAY USE DIVERSE NETWORKS
 - e.g. GSM / SMS, INTERNET, SS7
- MAY BE OFFERED AS A SERVICE BY OPERATORS (*fixed or mobile*)





v6 AS IDENTIFIER (1)



- IDENT MAPPED INTO v6 FORMAT
- USED INDEPENDENTLY OF TCP
- MAY BE USED WITH OTHER PROTOCOLS
- UNIQUENESS NOT REQUIRED
 - *ONLY IN SOME LIMITED CONTEXT*
 - *MAY NOT BE VALID AS INTERNET ADDRESS*
- MULTIPLE ALLOCATION SOURCES FITTING VARIOUS TRADE NEEDS



ITU-T



v6 AS IDENTIFIER (2)

- DISTINCT FROM v6 AS "INTERFACE"
- USAGE MAY BE CONSTRAINED BY LEGAL REQUIREMENTS
 - e.g. *AUTHENTICATION, CONFIDENTIALITY*
- MAY BE "OWNED" BY INDIVIDUALS OR COMPANIES
- MORE TARGETS FOR "PHISHING"



IS ROUTING READY FOR v6 (1)

■ A v4 ANECDOTE

62.21.12.200	193.17.41.24	212.244.44.226
62.87.137.98	193.17.41.26	213.17.211.106
62.111.153.187	193.17.41.31	213.77.124.6
62.121.131.225	193.42.231.70	213.180.130.86
62.129.194.111	195.117.215.4	213.238.69.84
62.141.254.128	195.135.236.11	213.241.69.3
62.233.203.12	195.205.36.110	217.197.68.100
80.252.2.12		

■ HOW MANY ROUTES FROM PARIS ?

➤ *19 IN THE BGP TABLE, said an expert*

■ ALL ADDRESSES ARE IN POLAND

➤ *THERE ARE MANY MORE ROUTES, said the expert*

➤ *WHO NEEDS THAT MANY ?*

Workshop on IPv6
Geneva, 22-23 June 2005



IS ROUTING READY FOR v6 (2)

- THERE WON'T BE MORE ROUTABLE ADDRESSES WITH v6 THAN WITH v4, *said the expert*
- IF TRUE, THERE IS SOMETHING WRONG WITH ROUTING, OR ALLOCATION, OR BOTH
- DOES ROUTING NEED MORE HIERARCHY ?
- . . OR REGULATION ?