

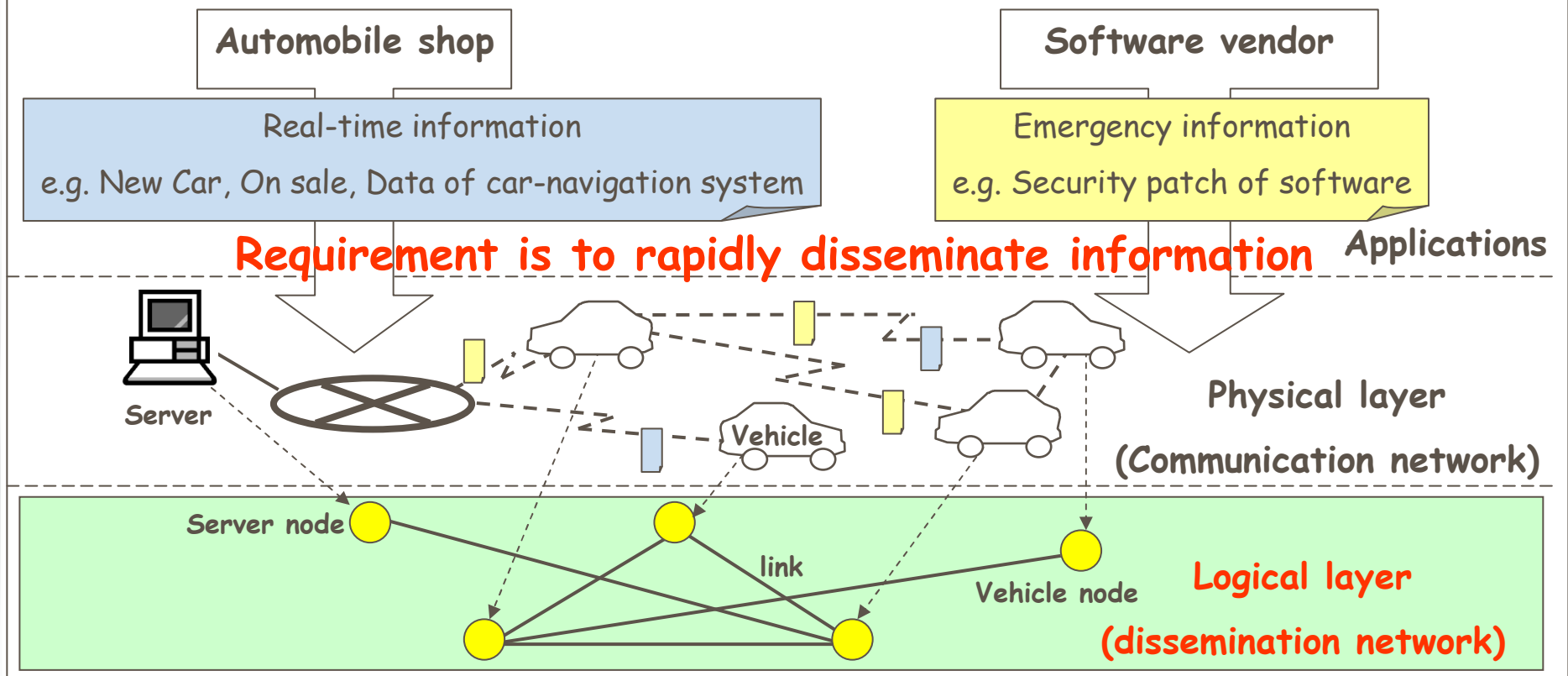
11th World Congress on ITS Nagoya Aichi 2004
Traveller Services 1: No.3195 19 Oct. 2004

Characteristics of Rapid Dissemination using Vehicle-to-Vehicle Communications

Hiroshi Sasaki¹, Hirotohi Iwasaki¹, and Tatsuya Suda²

¹ DENSO IT LABORATORY, INC. ² University of California, Irvine

Next generation information dissemination service



Our goal

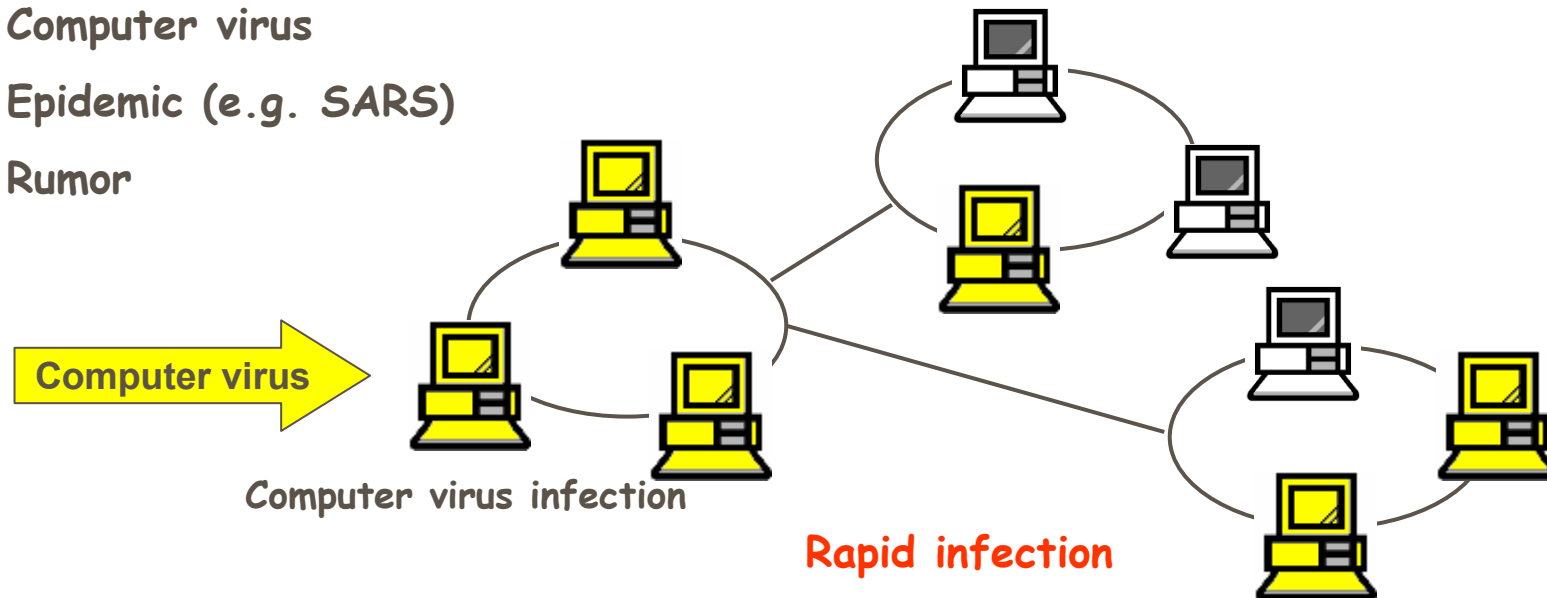
We need to know **the characteristic of dissemination network**

- Small-world emerge?
- Scale-free emerge?

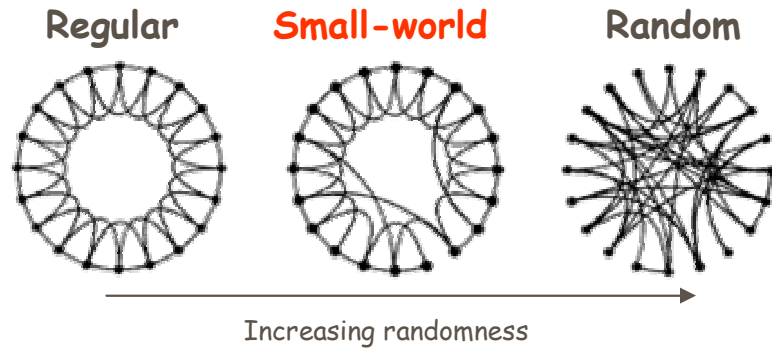
Related work

Characteristics of **Small-world** and **Scale-free** are useful for rapid dissemination

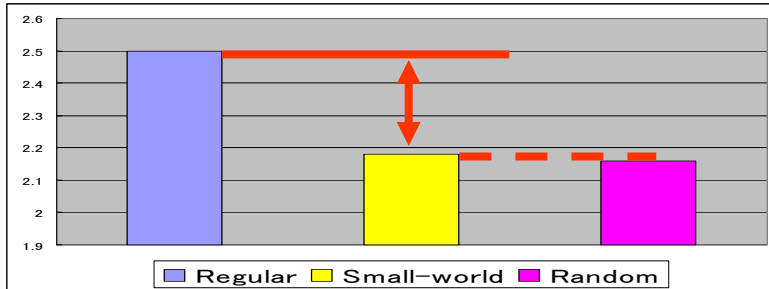
- Computer virus
- Epidemic (e.g. SARS)
- Rumor



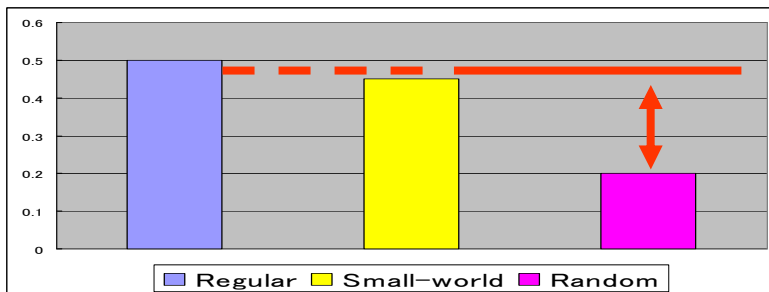
What is Small-world



Short average path length

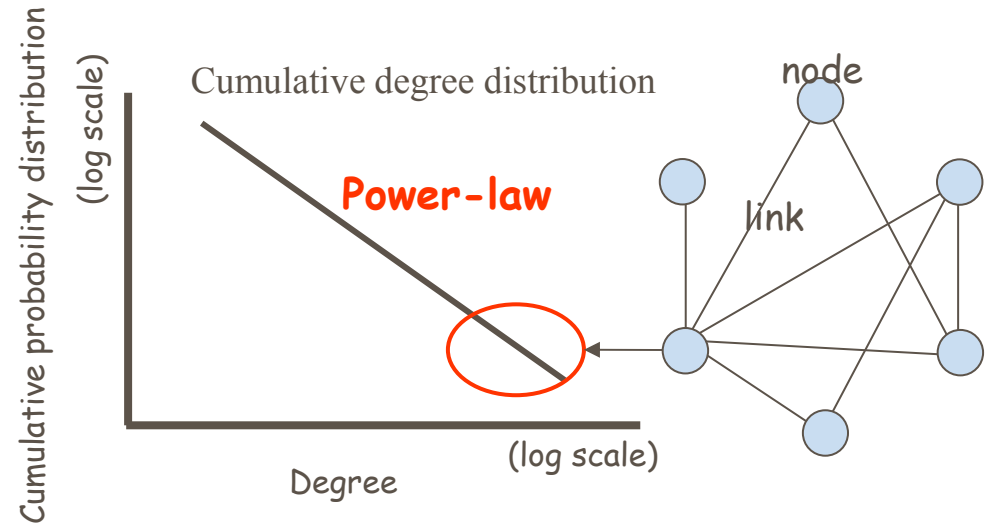


Cluster coefficient



What is Scale-free

The probability of nodes having many links is low

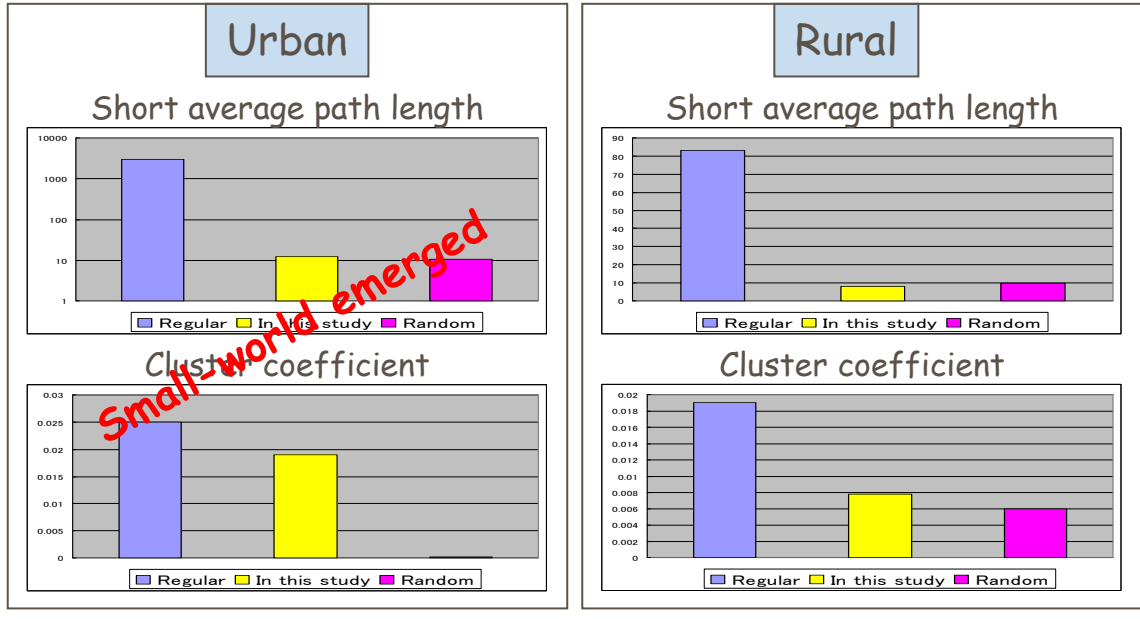


Dissemination speed

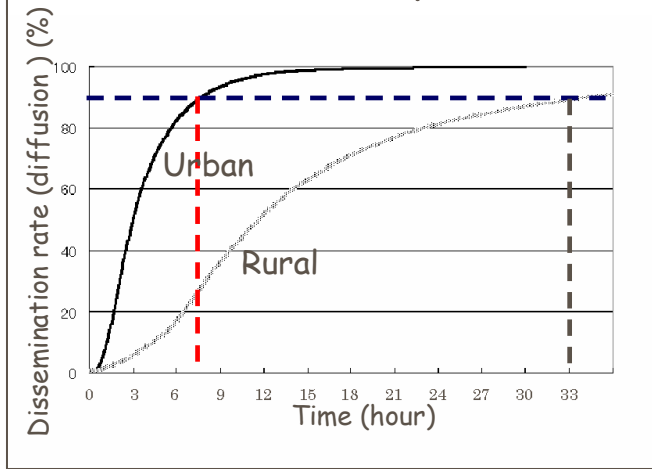
| | Regular | Small-world | Random |
|------------|---------|-------------|--------|
| Scale-free | Low | High | Normal |
| Other | Low | Normal | Normal |

Results

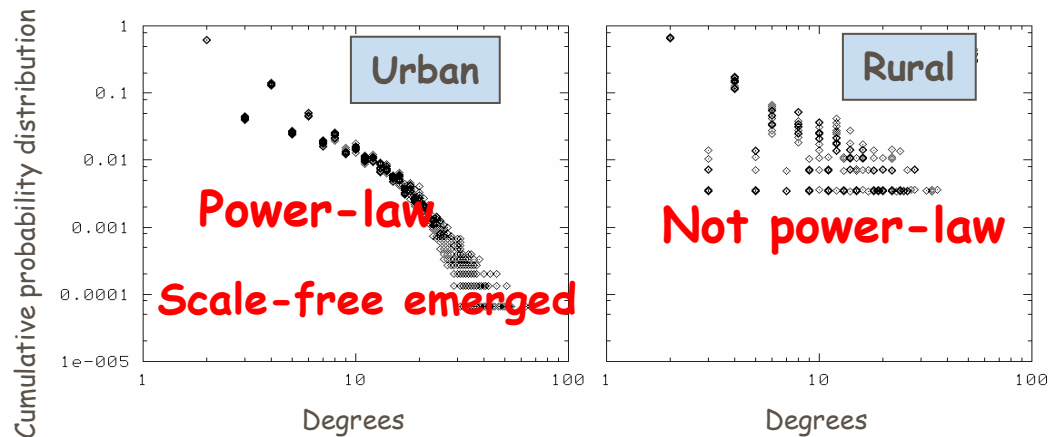
Small-world?



Dissemination speed



Scale-free?



Observation

Characteristics of Small-world and Scale-free are effective