IWIN 2009

History of the AlohaNet - ALOHA to the Web

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SUMMARY

• The history of ALOHA
• ALOHA applications
• The ALOHA channel
• Current issues in ALOHA
THE HISTORY OF ALOHA

1968

THE ALOHA SYSTEM

ATS-1

INTELSAT IV

packet repeaters

packet terminals

sensors

multiplexors

IBM 370/158

HP 2100

MODEM

SIMP

MINI

PCU

PCU

PCU

PCU
THE ALOHANET

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ALOHA APPLICATIONS

1. wired and fixed wireless (LANs)
2. satellite networks
3. wireless mobile networks

LANs – ETHERNET

- Alto ALOHA Network – Metcalfe ‘73
- CSMA/CD – Kleinrock / Tobagi ‘75
- Standard – IEEE 802.3 ‘83 ......
LANs – WiFi

- unlicensed bands (US) ‘85
- CSMA/CA – Kleinrock / Tobagi ‘75
- standard – IEEE 802.11 ‘97 ......

1995
EtherNet or ALOHANet ?

LANs – WiFi (Applications)
SATELLITE ALOHA

Marisat 1976  
private networks 1980’s  
Internet access 2000’s

ALOHA in MOBILE NETWORKS

1980’s  1990’s  2000’s  2010’s
1G  2G  3G  4G ...

request  control  *  SMS  *  GPRS  *  web
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THE ALOHA CHANNEL

maximum throughput = \( \frac{1}{2e} \) = 0.186
ALOHA FLAVORS

- unslotted ALOHA
- slotted ALOHA
- reservation ALOHA
- CSMA
- spread ALOHA

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CURRENT ISSUES in ALOHA

• to slot or not to slot?
• spread ALOHA – CDMA w/o CD
• WiFi – EtherNet or ALOHANet?
• bursty traffic – charging by the byte
• throughput and protocol overhead

REFERENCES

HISTORICAL REFERENCES