

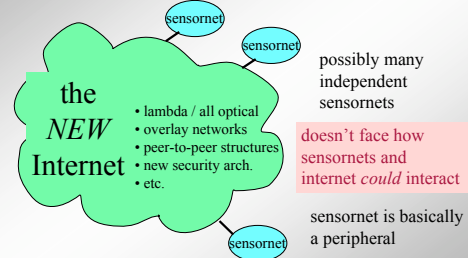
# Sensor Networks and the Internet

John Heidemann

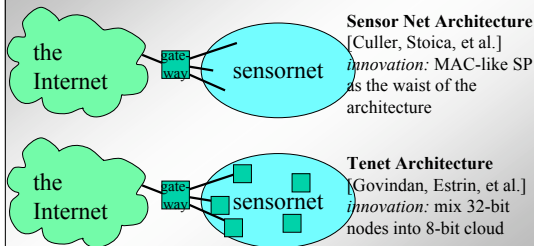
USC/Information Sciences Institute

24 October 2005

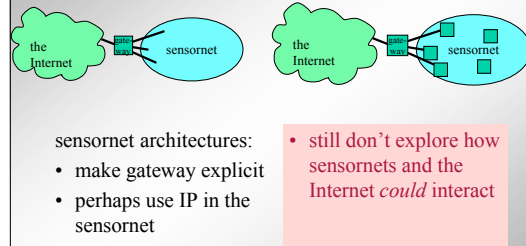
## Sensornets and the Internet? (view from Internet researchers)



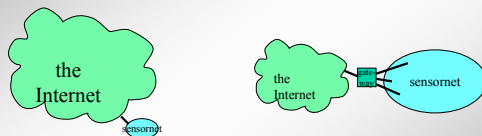
## Sensornets and the Internet? (view from Sensornet researchers)



## Sensornets and the Internet? (view from the Sensornet)

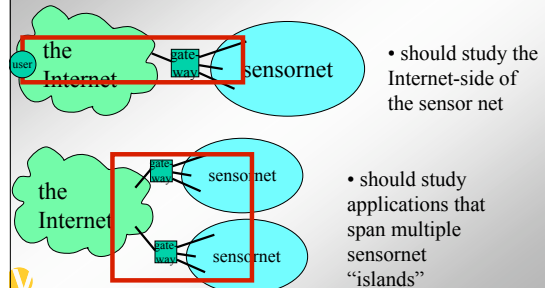


## Challenge: Towards a Richer Interaction



Surely there is benefit from richer interaction than simple gateways...

## Richer Interaction Between Sensornets and The Internet



### Sensornets and the Internet? (view from the TelCos)

- do ubiquitous cell phones replace sensornets?
- permit a much simpler architecture!
  - Lampson: don't make distributed if it can be easily centralized

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### New Internet Technologies and Sensornets

- new Internet technologies
  - ubiquitous, very high bandwidth optical
  - peer-to-peer technologies
  - overlay networks
  - new security architectures
  - delay-tolerant networks
- how do each of these interact with sensornets?

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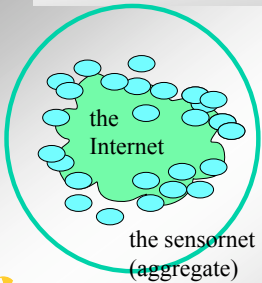
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## Slogging: Sensor Blogging



- what if there were *millions* of *collaborating* sensornets
  - the sensornet equivalent of blogging
  - each mini-sensor net run by a "citizen-scientist"


[due to Mark Hansen, keynote talk at SIAM Conf. on Data Mining, 2005]

the sensornet  
(aggregate)

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## Generalizing Beyond Sensor Networks

- what about things beyond sensor networks?
  - wireless, ad hoc networks
  - 802.11 hotspots
  - coming... WiMax (fixed wireless)
- current all hotspots are one-hop to the net
  - current model of every-node-a-gateway work well
- fixed wireless... could be more interesting

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## Open Question

- how does the sensornet meet the Internet?
- doesn't obviate the need for new research
  - in the sensornet alone
  - or in the Internet
- but an open question...

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