DOCKET FILE COPY ORIGINAL

03-108

RECEIVED

OCT 21 2003

Federal Communications Commission
Office of the Secretary

03-180

Bill Lane, Ph. D., PE
Office of Strategic Planning & Policy Analysis
Federal Communications Commission

- SPTF
- Unlicensed Uses
- Secondary Markets

- While the SPTF Report found continued demand for more spectrum; considerable spectrum is available when both space and time are considered
  - Hence SPECTRUM ACCESS is a major issue
- Report also found that in view of recent impact of Wi-Fi and other unlicensed systems, there is great interest in more spectrum where unlicensed access is facilitated

- In DEC '02 FCC adopted an NOI in Docket 02-380 exploring unlicensed sharing of spectrum in TV bands below 900 MHz
- Interference could be avoided by:
  - Geographical separation and check of license database, *or*
  - Listen-before-talk algorithms

- There is a relationship between the sensitivity of the listen-before-talk detector, the allowed transmit power, and the probability of interference

  (Although there has been little published in this area)

- FCC 2/12/03 tutorial by John Betz, MITRE Corp., explored "feature detectors"

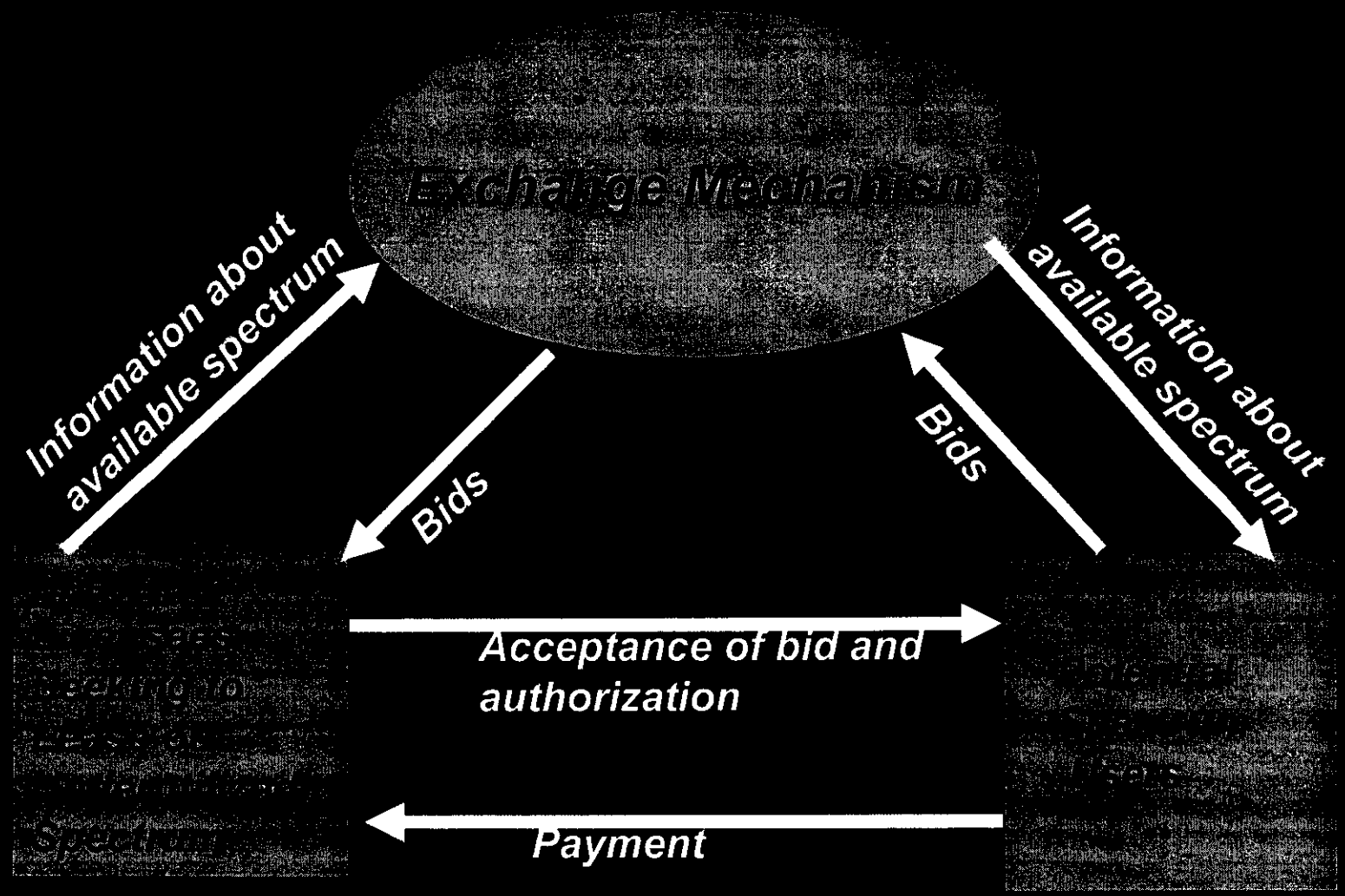
  - sensitive listen-before-talk detectors that are little known in commercial circles

Can cognitive radio technology be used to improve unlicensed spectrum access while also avoiding harmful interference?

- In Docket 00-230, FCC is considering both short term and long term leasing of spectrum by licensees without case-by-case FCC approval
- Seen as possible method to improve spectrum efficiency by giving economic incentives to licensees to allow more intensive use

- Multiyear leases could be done with conventional technology
  - lessee just builds new system(s) using leased spectrum
- Leases in the hours/minutes/seconds range are the subject of today's discussion

- In the electric power industry there is an hour-to-hour market for power exchange
- Should we remove any barriers to such a market in the commercial spectrum area?
- Such a market might require:
  - An exchange mechanism to bring buyers and sellers together
  - A standard definition for what is being bought and sold
  - A real time spectrum management monitor to insure compliance


Exchange Mechanism
Information about available spectrum
Bids
Bids
Information about available spectrum
Acceptance of bid and authorization
Payment

Cognitive radios and dynamically reconfigurable software radios could provide a means to implement such a spectrum commodity market

Is a free, real time secondary market practical and/or desirable?

What present FCC rules and policies inhibit the development of such approaches or create uncertainty for developers?

Should FCC have a role in defining standard interfaces for such information flow and spectrum exchange?

We look forward to your views on how we should address these issues!