What it **Really** Takes to Tune a Speech Application

Fran McTernan, Nortel
August 8, 2006
Discussion Points

• What is “tuning”?

• Where to start

• What pieces need to come together for a successful tuning
The Holistic Approach to Tuning

Tuning activities need to be balanced for a clear view of performance
When and Where to Start...

• Plan for tuning during requirements & design phases
• Tuning doesn’t just happen after deployment:
  – What are the success criteria?
  – What needs to be measured?
  – How will it be measured?
  – What needs to be designed and coded to support the tuning effort?

• Who/What/Where for tuning –
  – Who will be the callers?
  – What data needs to be collected and how does it need to be processed?
  – Where will the calls and data be collected, i.e., a particular system or region?
Application Statistics

• Application call flow counters
• Call Detail Records (CDRs)
  – where in the app are counters incremented?
  – best when calls can be reconstructed from start to finish without “guess work” as to what really transpired
• Usually, either counters or CDRs are sufficient
• Things to consider:
  – where will the data be stored?
  – allow for enabling/disabling data collection at will?
  – long-term data management
Recognition Statistics

• Recognizer engine performance:
  – in-grammar (IG)
  – out of grammar (OOG) (a.k.a. out of vocabulary OOV)
  – maximizing engine parameters

• Recognition event evaluation:
  – No Speech (NSP)
  – Rejections (REJ)
  – DTMF entry
  – other integration-specific events

• Grammar coverage
Usability Testing

• Are callers satisfied?
• Can callers complete a given task?
• Where are the “trouble spots” for a caller?
• Participants, especially anonymous ones, are generally very honest (and blunt) with feedback
• Surveys very often pinpoint other problems (database, application, recognition) that may not have been found during testing
Tying the pieces together…

• Considerations prior to tuning:
  – Do the application and recognition stats need to be merged or reconciled?
  – How many calls and/or utterances will be needed?
  – Ready for transcription?
  – When will we do usability testing?
  – How will the data be analyzed?
    • custom reports
    • third party tools
    • database queries
What’s Next?

- Evaluate and apply recommendations for improvement
- Determine if the system is ready for full production or additional call volume
- Another tuning cycle?
- Consider periodic ‘health checks’
In Summary:

✓ Plan for a holistic system assessment

✓ Don’t under-estimate the effort to do a comprehensive, productive tuning

✓ Plan early and test the components required for a successful deployment:
  > Know what success means
  > Know what to measure
  > Know *how* to measure it
Empowering Your customers and employees with speech technologies

SpeechTEKI 2006
The Voice Solutions Showcase

Thank You