

# Contact Profile (1/2)

- Steve Livengood
  - Samsung Information Systems America (Samsung Electronics)
- Areas of Interest / Focus
  - Software product line architectures
  - Application of model-driven approaches to software product lines

# Contact Profile (2/2)

- Objectives / Looking for
  - Stay abreast of current problems with SPL adoption and evolution (and their solutions)
  - Meet with recent adopters of SPL
  - A successful workshop will result in
    - New contacts in the SPL community
    - Awareness of new SPL techniques

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# Product Line

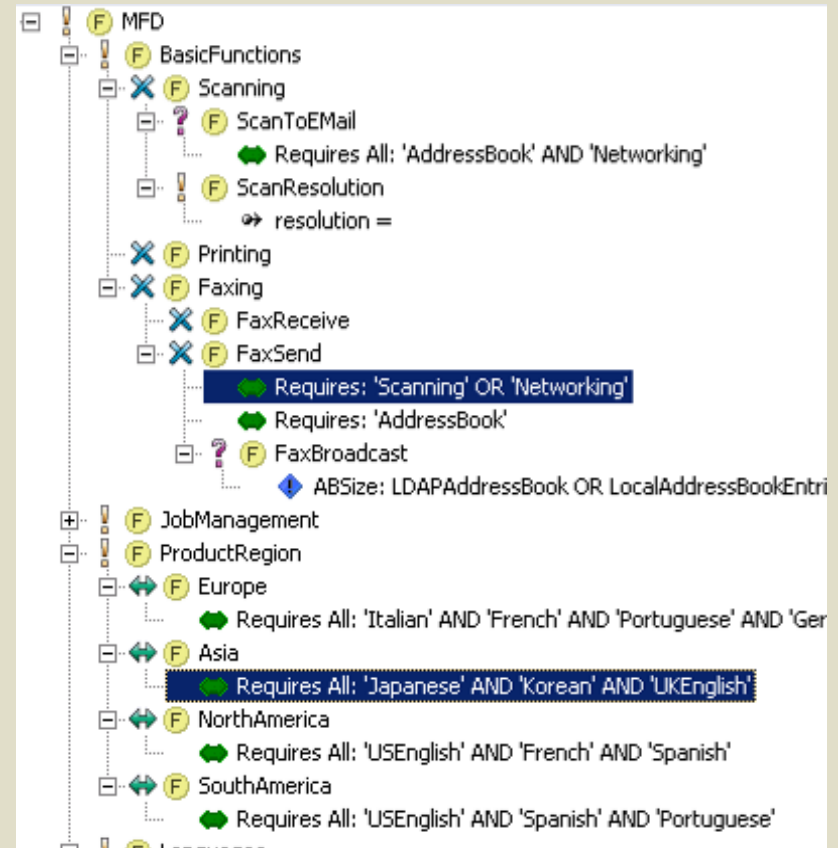
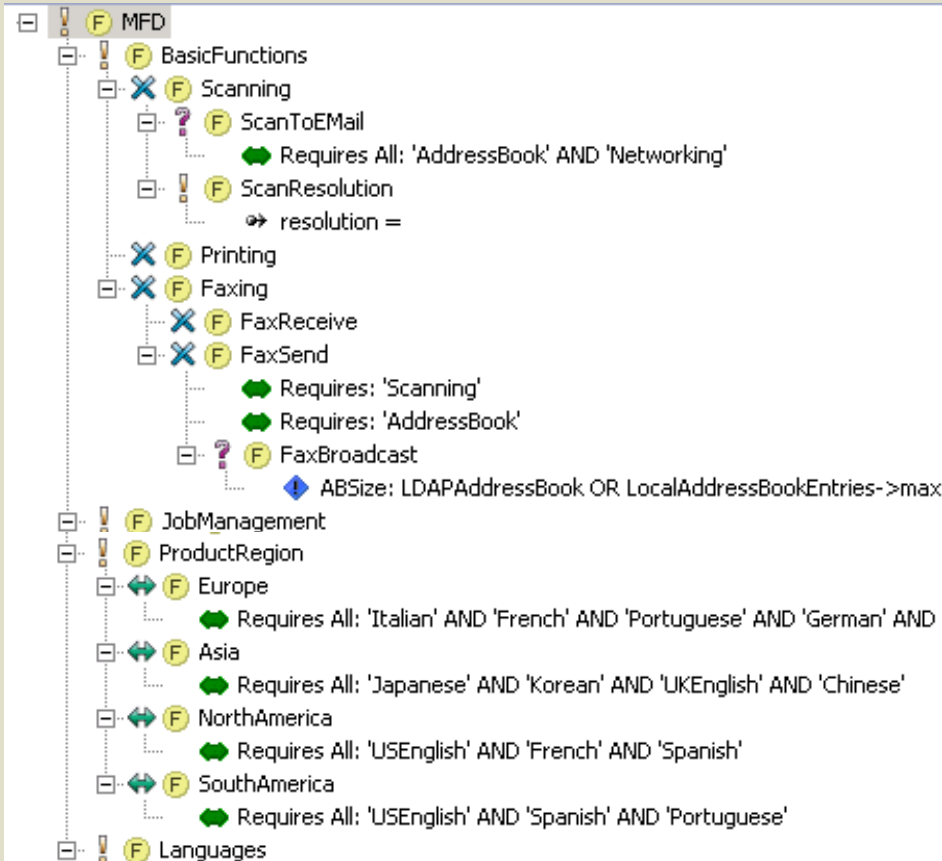
- Multifunction Devices (MFDs)
  - Products for office and workgroup environments that scan, print, fax, and copy
- Domain / Scope
  - Established and well-understood domain
  - Significant superficial commonality between products, but also significant variation at the product level
- Organization
  - Running this product line for about 6 years
  - Evolution and maintenance of the product line is routine
    - Introduction of new products AND introduction of new features to existing products

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# The Problem (1/3)

- An important part of evolution of the product line is assessing the impact of a proposed change
- Some kinds of changes to the variability model make it difficult for us to perform an impact assessment
  - Usually such changes alter constraints involving multiple variation points

# The Problem (2/3)



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# The Problem (3/3)

- Description of Examples
  - Example 1
    - Relax the constraint that faxing requires Scanning (now it's Scanning or Network)
  - Example 2
    - Allow Asian products to omit Chinese as a supported language
- Issues
  - Latent dependencies in lower-level designs may exist
    - Design of some fax modules may have been dependent on presence of scanning libraries (or, worse, on some other function implied by the presence of scanning)
    - Implementation support for Asian typography may have been placed in code based on the Chinese variation; Japanese or Korean are dependent on Chinese
  - Assessing the impact of making these changes requires identifying such design dependencies

# Current Solution

- There is no truly acceptable solution in the organization
  - Must rely on knowledge of key engineers
- Increasing complexity of the software base and attrition within the organization make the situation worse

# Why is it interesting?

- It's a real problem we currently have
- Solutions need to be practical within the organization
  - Not just theoretical
  - Must accommodate organizational maturity

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# Potential Collaborations

- Solutions that deal with
  - Ways to express variability models
  - Traceability of variation into design artifacts
  - Design techniques that make impact assessment easier

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