Modelling and Analysis of Communications Services

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www.cs.stir.ac.uk/~kjt/research/cress.html

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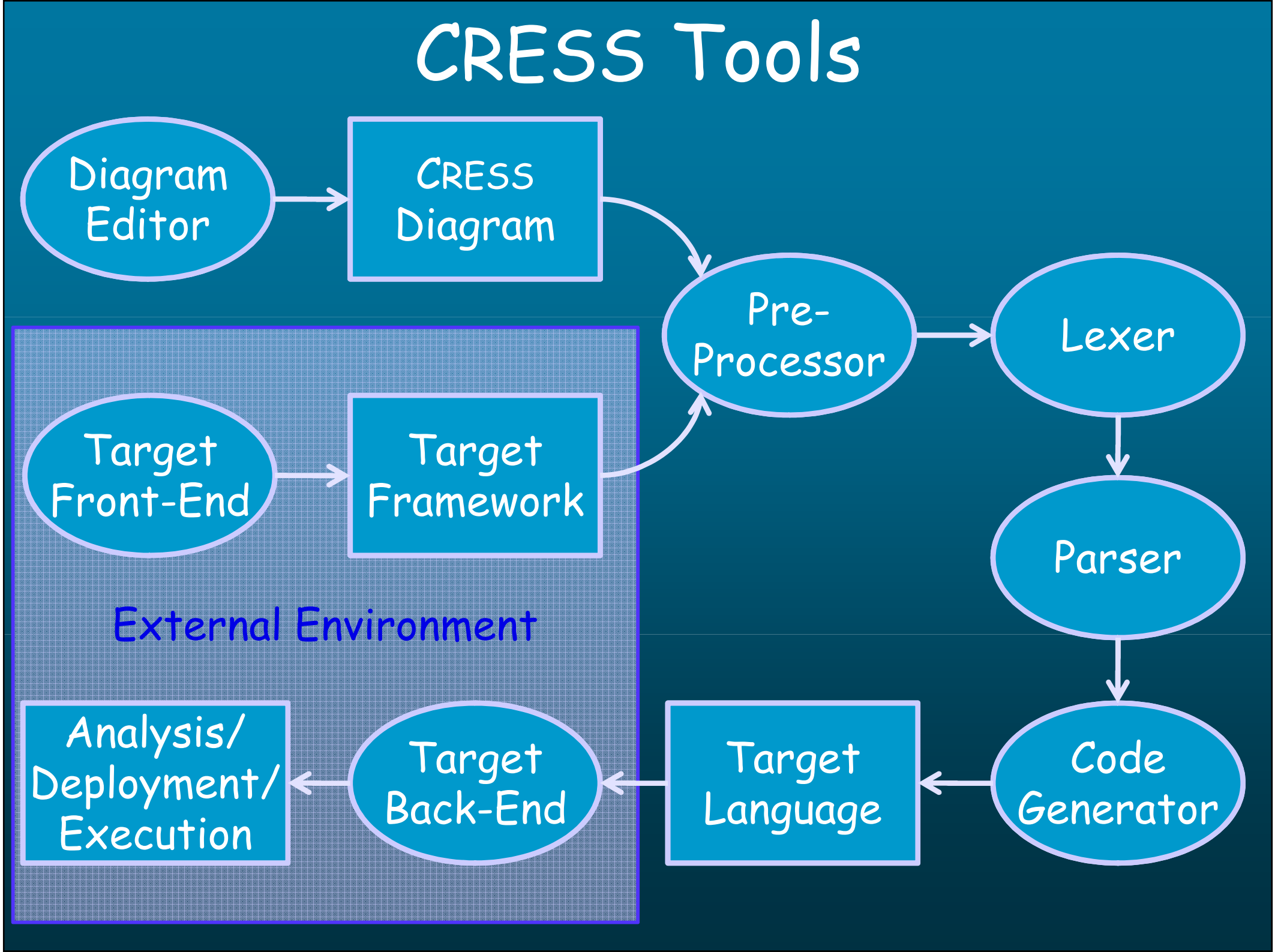
CRESS

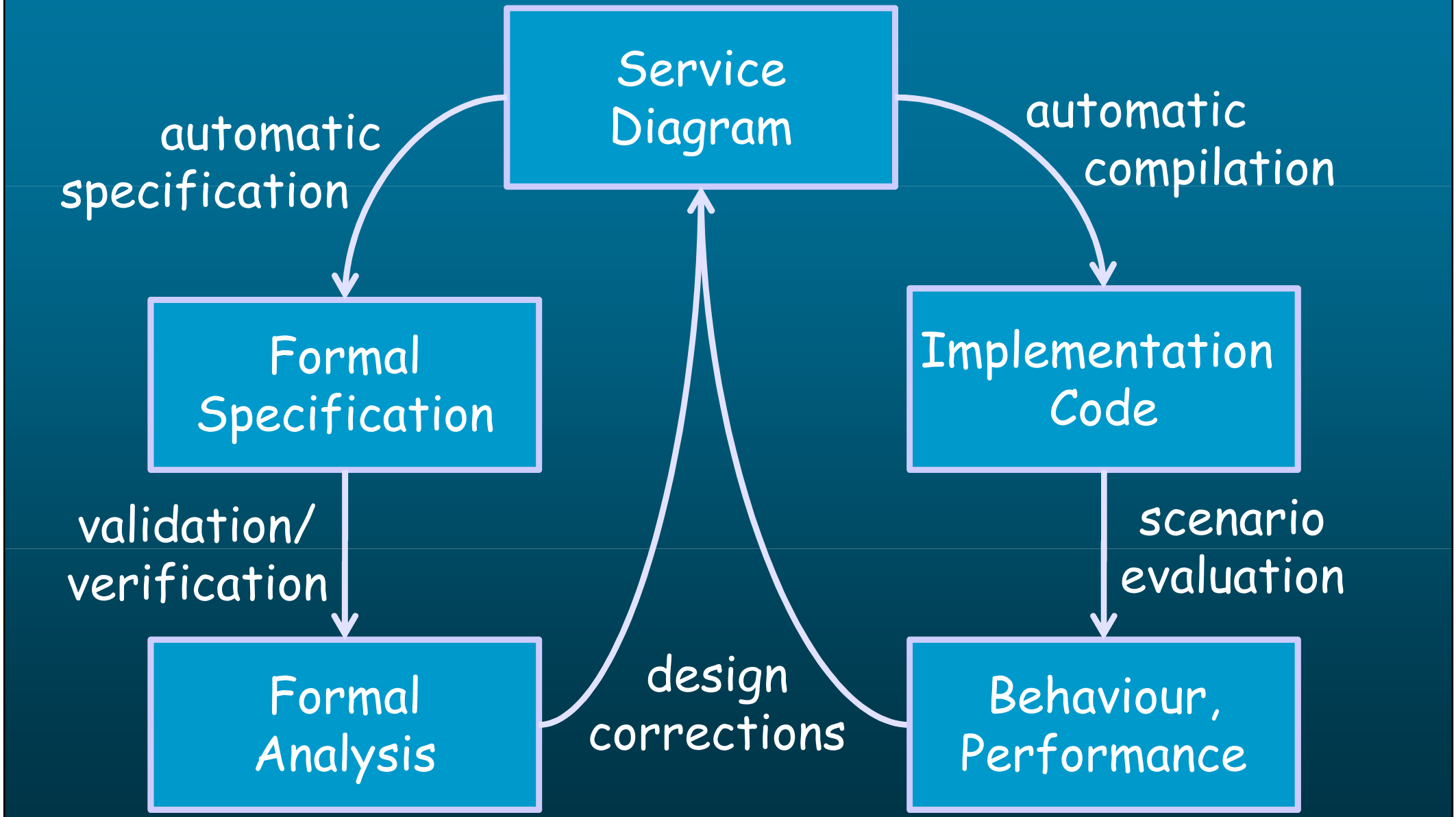
- Communication Representation Employing Systematic Specification:
  - graphical service notation – voice, web, grid, ...
  - language-independent – LOTOS, SDL, BPEL, ...
  - portable toolset – Windows, MacOS, Linux, ...
  - automated formalisation – specification, validation, verification
  - automated implementation – code generation, functional/performance testing
  - mature - under development for 13 years


CRESS Tools
Diagram Editor
CRESS Diagram
Pre-Processor
Lexer
Parser
Code Generator
Target Language
Target Back-End
Analysis/ Deployment/ Execution
Target Front-End
Target Framework
External Environment

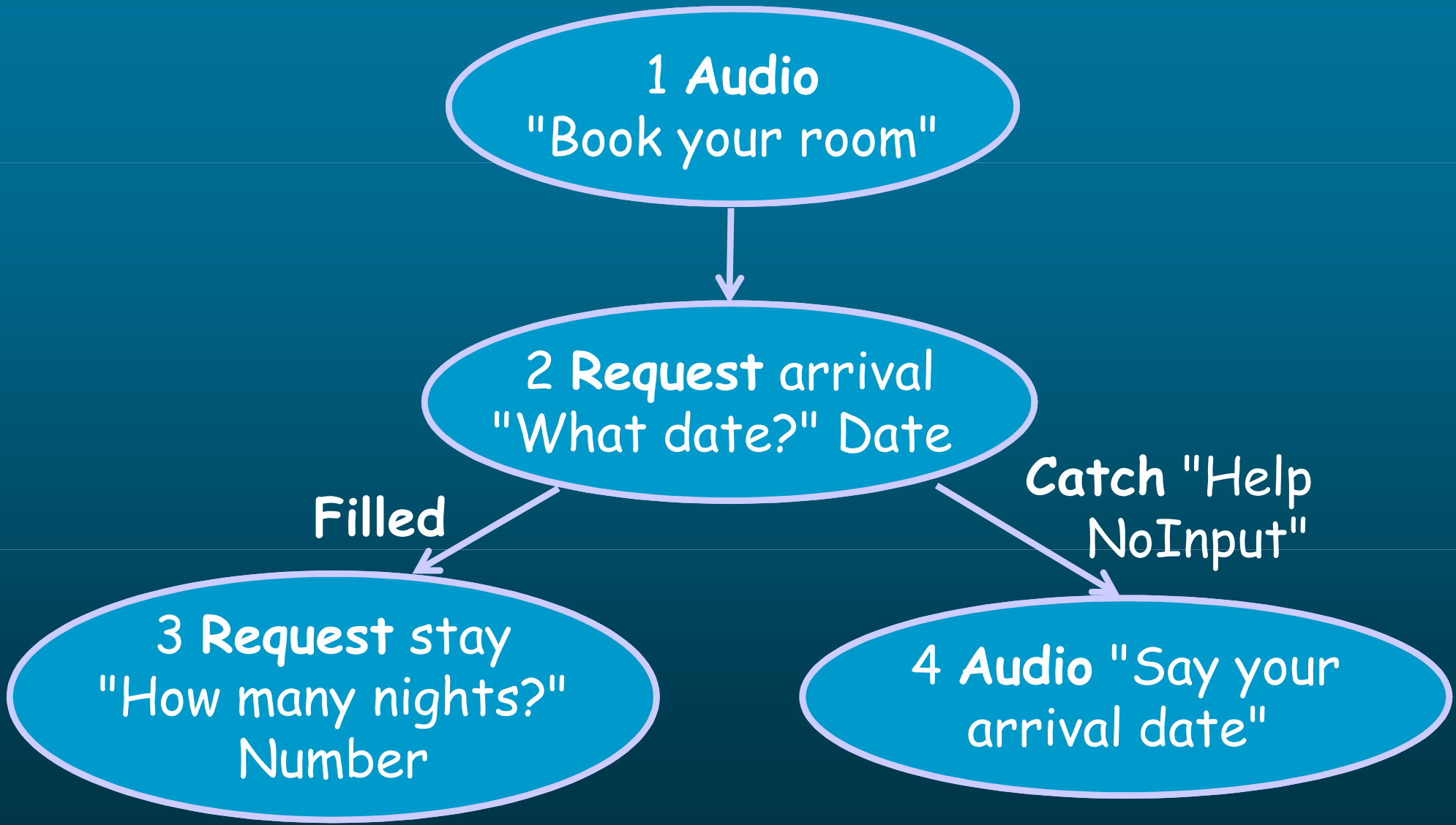
Related Tools

- diagram editing:
  - CHIVE (CRESS Home-grown Interactive Visual Editor)
- formal validation:
  - MUSTARD (Multiple-Use Scenario Test And Refusal Description)
- formal verification:
  - CLOVE (CRESS Language-Oriented Verification Environment)
- implementation validation:
  - MINT (MUSTARD Interpreter)

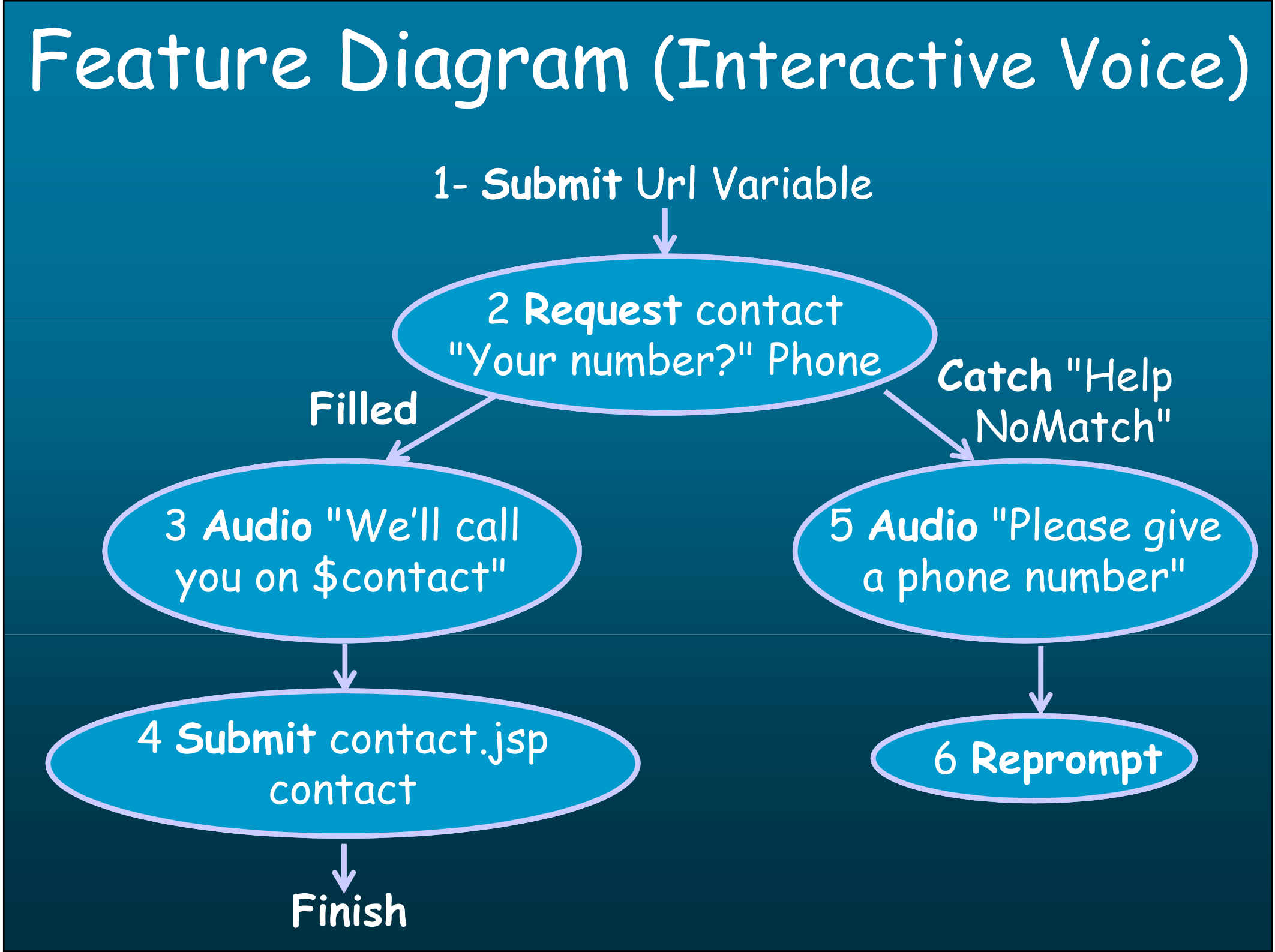
CRESS Methodology



Root Diagram (Interactive Voice)



Feature Diagram (Interactive Voice)



CRESS Applications

- Intelligent Network:
  - Plain Old Telephone Service + features
- Session Initiation Protocol:
  - User Agent, Proxy/Redirect Server + features
- Voice over Internet Protocol:
  - Call Processing Language services
- Interactive Voice Response/Prompting:
  - VoiceXML services + features
- Device/Grid/Web Services:
  - Business Process Execution Language services + features