Teaming

TO DELIVER KEEL-BASED SOLUTIONS

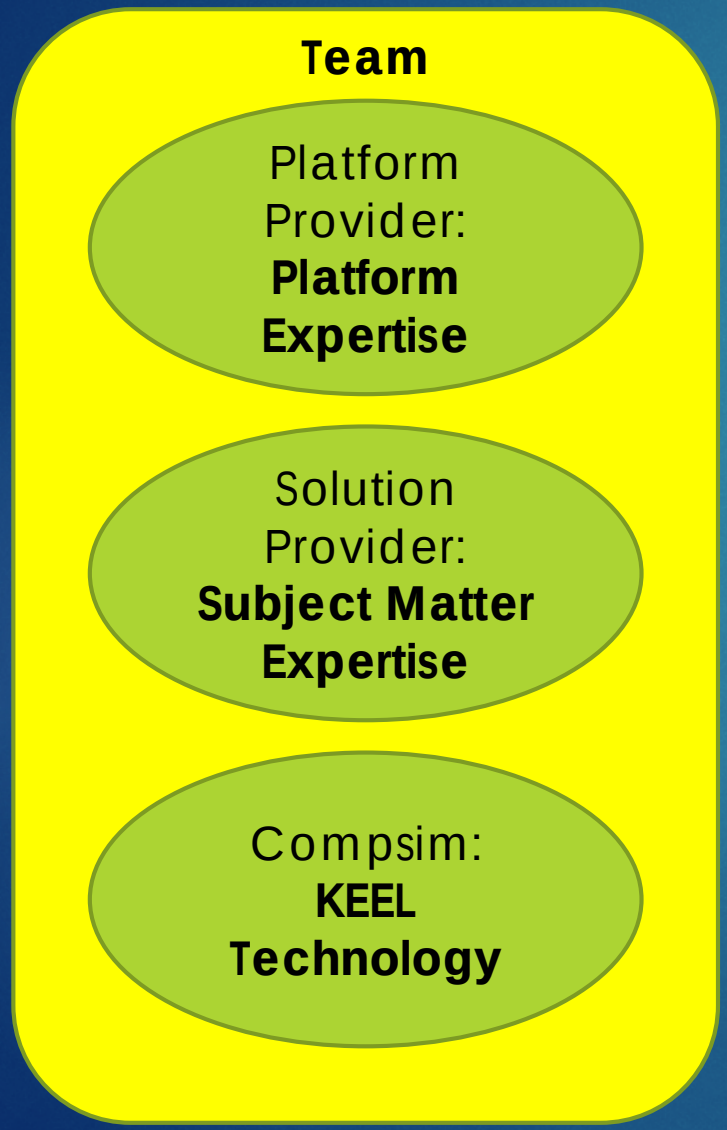
Why Teaming?

- Because all domain knowledge probably does not exist within one person or within one company.
- Team members bring their special knowledge, their skills, their objectives, and their technology to the team to deliver solutions to satisfy customer needs.

The Participating Roles:

- The Customer with the problem
- The party providing the Solution Provider Role who understands the problem and provides the subject matter expertise to solve the problem using KEEL Technology (Solution SME)
- The party providing the Platform Provider Role who understands the target platform (Platform SME)
  - The assumption is that the experts with the operational expertise to solve the customer's problem may not be the same person/organization that owns the target platform and may not know how KEEL cognitive engine components can be inserted into the target platform
- Compsim, licensor of KEEL Technology, provides licensed use of KEEL "tools" to create licensed "KEEL cognitive engine components" and can provide training on KEEL "tools" and general application consulting concerning the general application of KEEL Technology

The Pieces



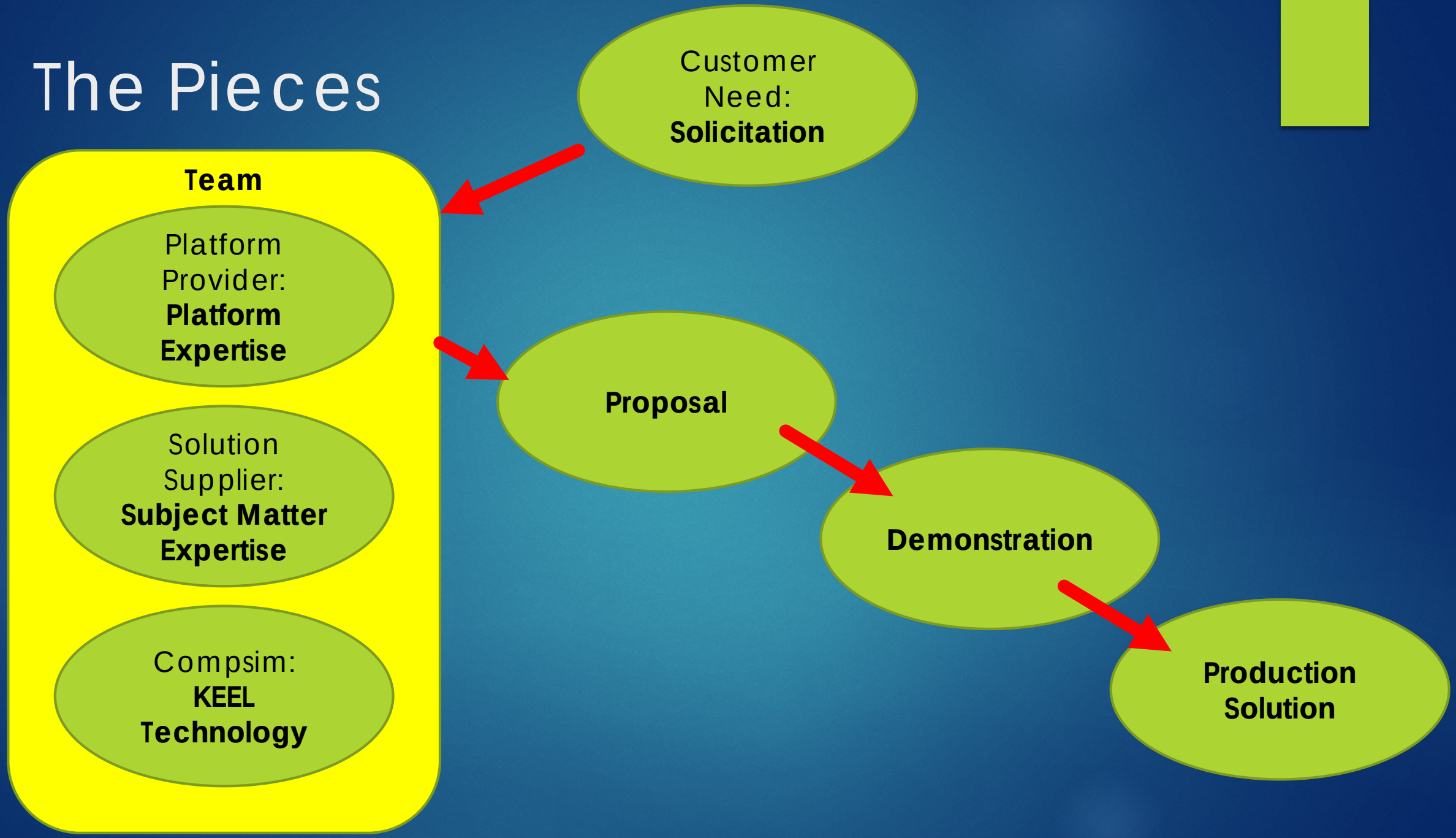
Customer Need: **Solicitation**

Proposal

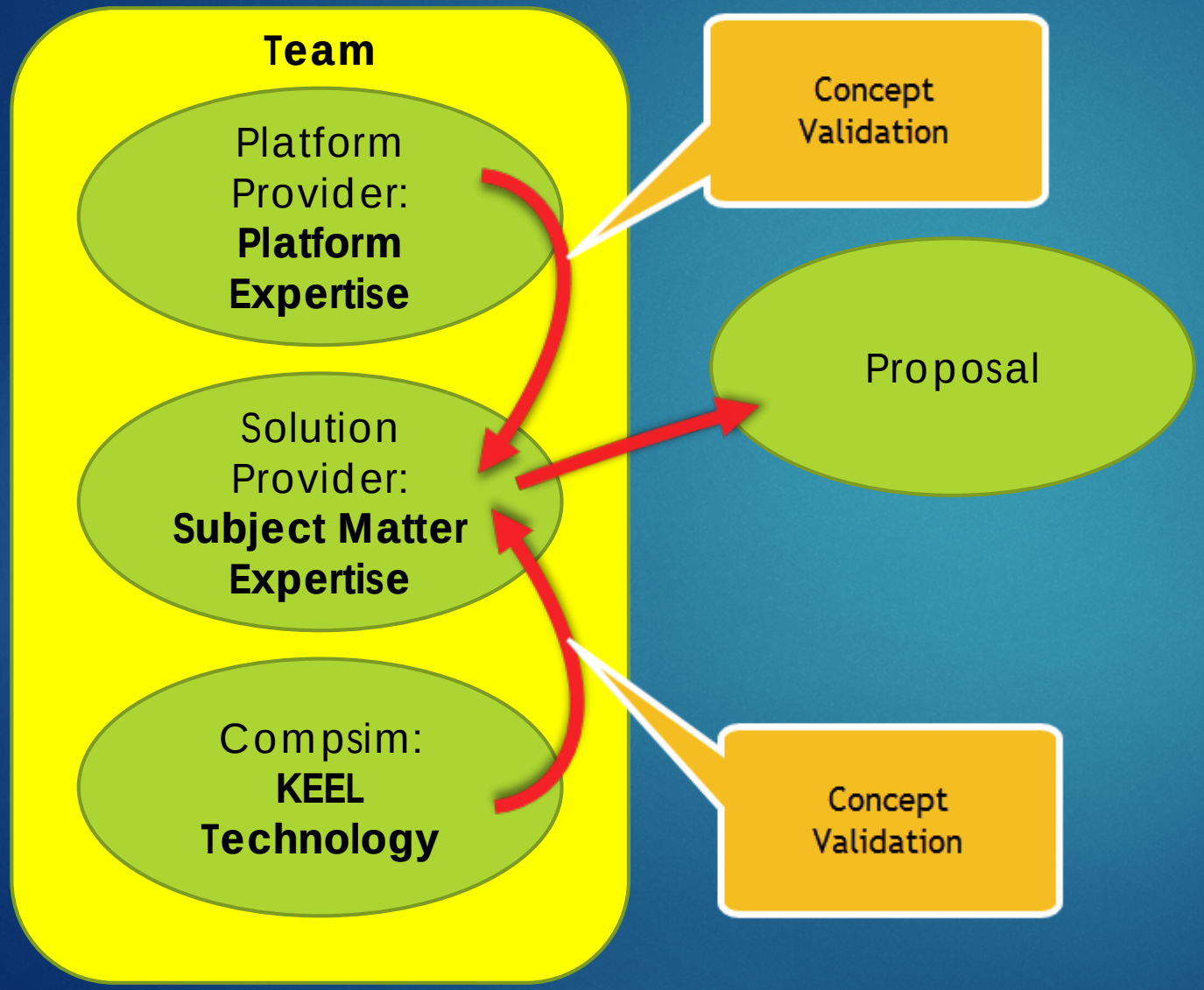
Demonstration

Production Solution

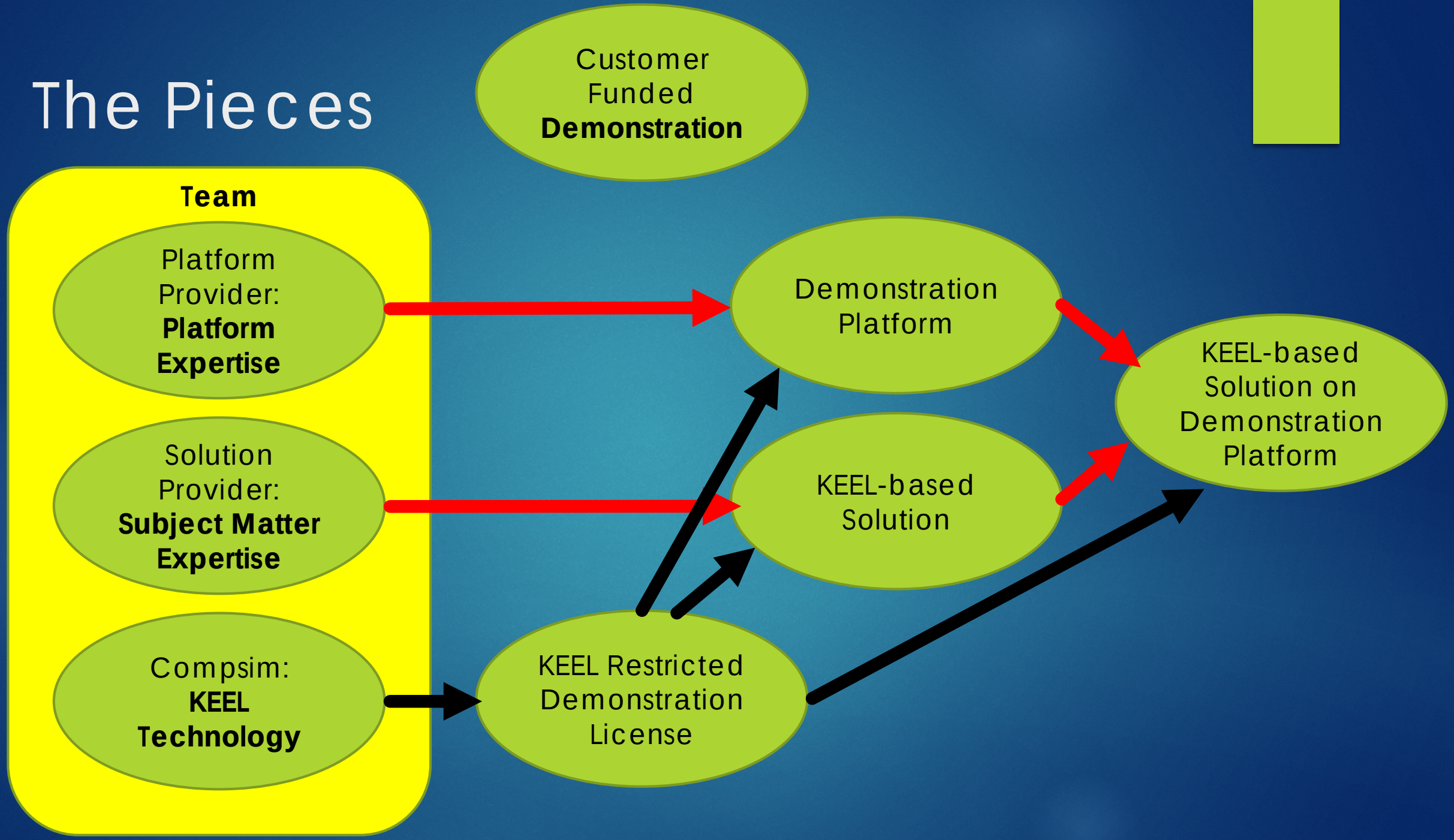
The Pieces


Customer Need: **Solicitation**
Team
Platform Provider: **Platform Expertise**
Solution Supplier: **Subject Matter Expertise**
Compsim: **KEEL Technology**
Proposal
Demonstration
Production Solution

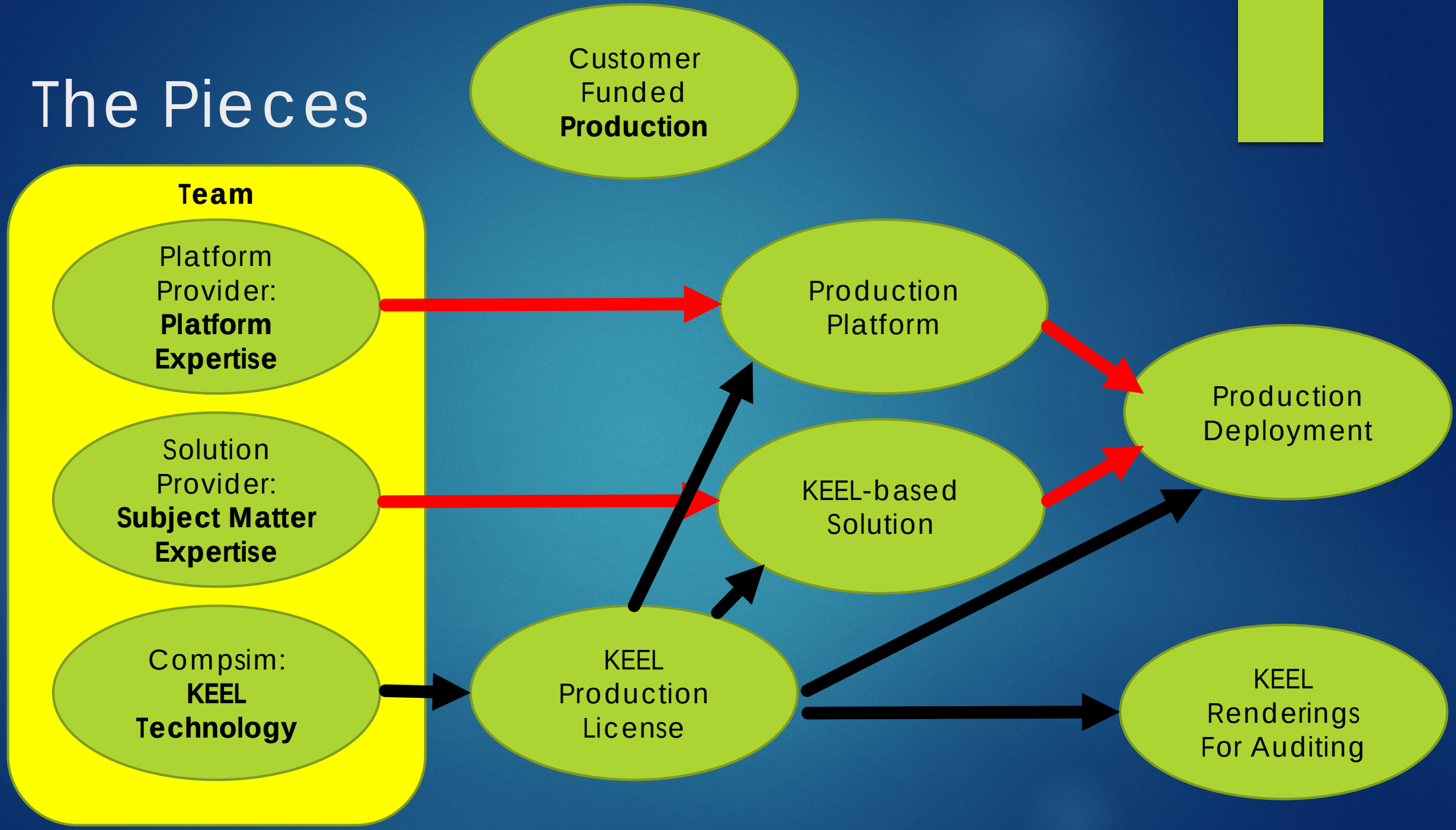
The Pieces


Team
Platform Provider: **Platform Expertise**
Solution Provider: **Subject Matter Expertise**
Compsim: **KEEL Technology**
Concept Validation
Proposal
Concept Validation

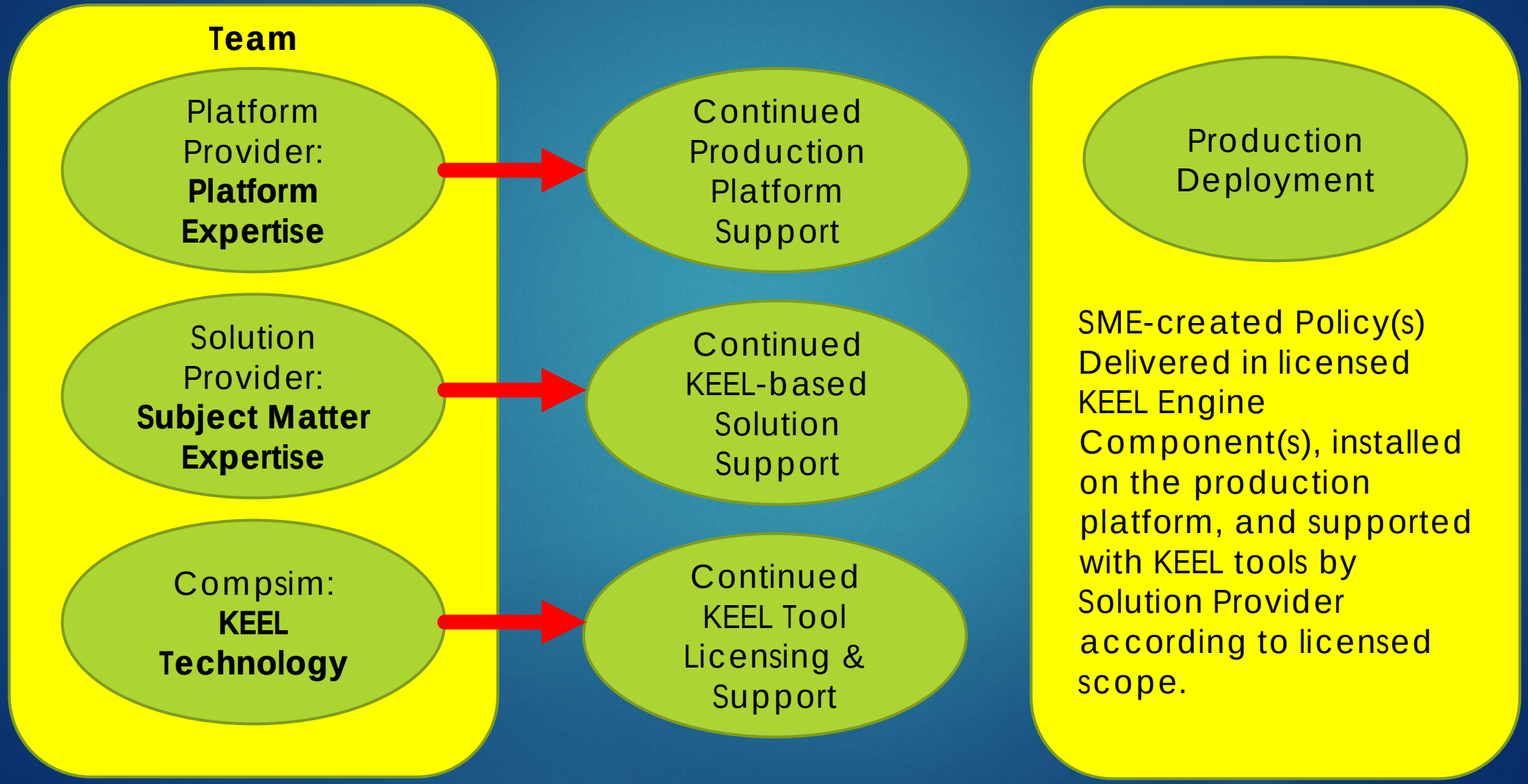
The Pieces


Customer Funded **Demonstration**
Team
Platform Provider: **Platform Expertise**
Solution Provider: **Subject Matter Expertise**
Compsim: **KEEL Technology**
KEEL Restricted Demonstration License
Demonstration Platform
KEEL-based Solution
KEEL-based Solution on Demonstration Platform

The Pieces


Customer Funded **Production**
Team
Platform Provider: **Platform Expertise**
Solution Provider: **Subject Matter Expertise**
Compsim: **KEEL Technology**
Production Platform
KEEL-based Solution
KEEL Production License
Production Deployment
KEEL Renderings For Auditing

The Pieces: Post Production



Activities: Proposal Generation

- Solution Provider Role
  - Defines the solution to the customer's requirements
  - Prepares proposal with pricing
- Platform Provider Role
  - Identifies demonstration platform and architectural considerations
  - Identifies source of influencing data items
  - Reviews proposal for compatibility with platform
- Compsim
  - Comments on suitability of KEEL Technology for proposed solution
  - Assists the Solution Provider by providing KEEL Training and suggesting design alternatives (if needed)
  - Reviews proposal for compatibility with KEEL Technology

Activities: Demonstration:

- Customer
  - Funds Demonstration Platform Development
    - Demonstration Platform Supplier
  - Funds Solution Development
    - Operational Policy SME
  - Funds Evaluation License for target application
    - Compsim
  - Reviews / Validates Demonstration

Activities: Demonstration

- Solution Provider Role (Solution SME)
  - Learns KEEL Tools under evaluation license (if not already trained)
  - Develops, Tests the solution to the customer's requirements
  - Runs demonstration with Platform SME
- Platform Provider Role (Platform SME)
  - Provides influencing data items (inputs to policy)
  - Uses outputs from policy to control outputs.
  - Runs demonstration with Solution Provider SME
- Compsim
  - Provides Restricted Evaluation License to KEEL Technology to Customer
    - Sublicensed to Solution Provider SME & Platform Provider SME
  - Reviews Operational Policy for techniques (if necessary)
  - (Optional) Provide Pre-Simulation Simulation Platform to accelerate policy development
  - Supports Demonstration Platform (if changes needed)

Activities: Production

- Customer & Compsim negotiate a production license for defined scope that includes a sub-license to Solution Provider and Platform Provider to use KEEL Technology in support of scoped problem.
- Solution Provider and Platform Provider support the embedded policy in response to changing operational scenario within the solution scope.
  - New information sources
  - New decisions or actions
  - New or revised operating scenarios within the defined scope
- Customer uses production platform to pursue goals
- (Optional) Compsim provides KEEL Renderings to Customer, Solution Provider, and/or Platform Provider
- Customer performs After Mission Reviews and directs Solution Provider and Platform Provider for enhanced operational policies

Background Material

- The Problems
- The Solutions
- Domain Knowledge
- Why KEEL Technology

The Problems

- The pursuit of operational efficiencies demands that more and more services are automated
  - For speed
    - Human-on-the-loop rather than human-in-the-loop
  - So solutions can be mass produced
    - Delivered in autonomous and semi-autonomous systems
  - In order to avoid human error
  - Keep humans out of harm's way
- The problems are complex and have historically required humans to make the complex decisions and exert expert operational control

The Solutions

- Human-on-the-loop solutions
  - Keep humans in charge
  - Transfer adaptive command and control responsibilities to machines
    - Allows mass production of capabilities
  - Operational policies developed independent of the target platform
    - Design once, deploy many and save money
  - Autonomous and semi-autonomous solutions must be explainable and auditable
    - A requirement for autonomous automation of safety critical systems
  - Must be easy to change as tactics and tools of adversaries change
    - Control costs and react to change
  - Must be easy to change as new tools and information sources change
    - Control costs and react to change
  - Do more with less

Government Solicitations identify problems that need solutions

- Domain knowledge (Subject Matter Expertise) exists with Prime Contractors with experienced personnel
- Compsim has developed KEEL (Knowledge Enhanced Electronic Logic) Technology as a fundamental – base level technology to address complex (dynamic, non-linear, inter-related, multi-dimensional) problem sets
  - KEEL Technology provides a new way to deliver solutions to complex problems in the form of KEEL Cognitive Engine "components"
  - KEEL Technology is supported with "tools" that make it easy to capture, test, package, audit and explain KEEL-based decisions and actions.
  - KEEL Technology makes it easier to learn about and address complex problems that have not been cost effective to address before

One would choose KEEL Technology because:

- Domain knowledge exists in the form of human experience driven by policies that have been interpreted and executed by humans. These policies are currently not defined by mathematical formulas. And it might be too difficult (or impossible) to define some of these human experiences with mathematical formulas using conventional approaches.
  - Describe in text, translate to formula, translate to code, again and again and again
- Domain knowledge incorporates undocumented human “values” and undocumented “valued” influencing factors that have been used by humans executing operational control and making complex decisions
- Because using KEEL makes the entire process more efficient!