

Software Product Lines for Immersive Training



Presented By

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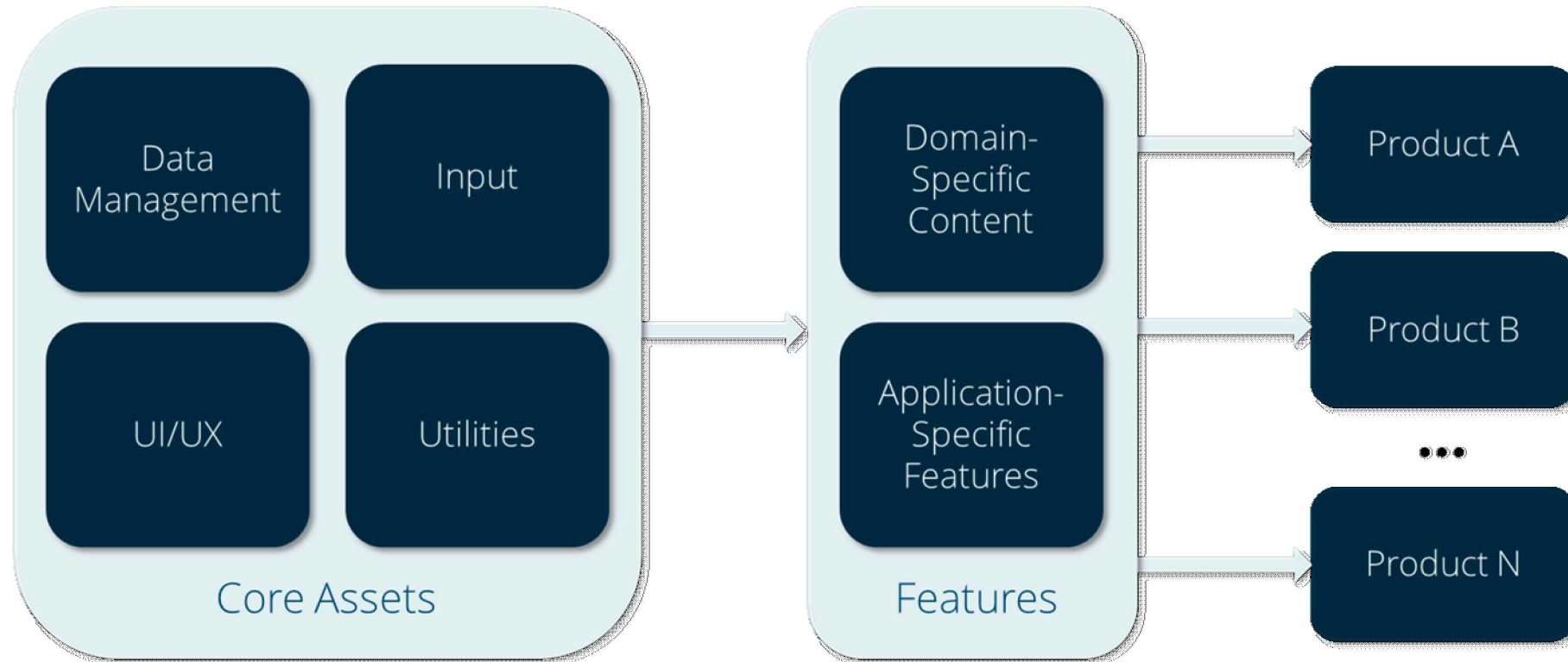


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What are Software Product Lines?

As defined by Carnegie Mellon University's Software Engineering Institute (SEI):

A software product line is a set of software-intensive systems that share a common, managed set of features satisfying the specific needs of a particular market segment or mission and that are developed from a common set of core assets in a prescribed way.



What are the general benefits?

From the SEI:

- Improved productivity
- Increased quality
- Decreased cost
- Decreased labor needs
- Decreased time to market
- Ability to move into new markets in months, not years

Additionally:

- Common look and feel
- Easier to maintain all products
- Easier to pick up for new and temporary team members



How do software product lines help XR at Sandia?

Software product lines are ideal for:

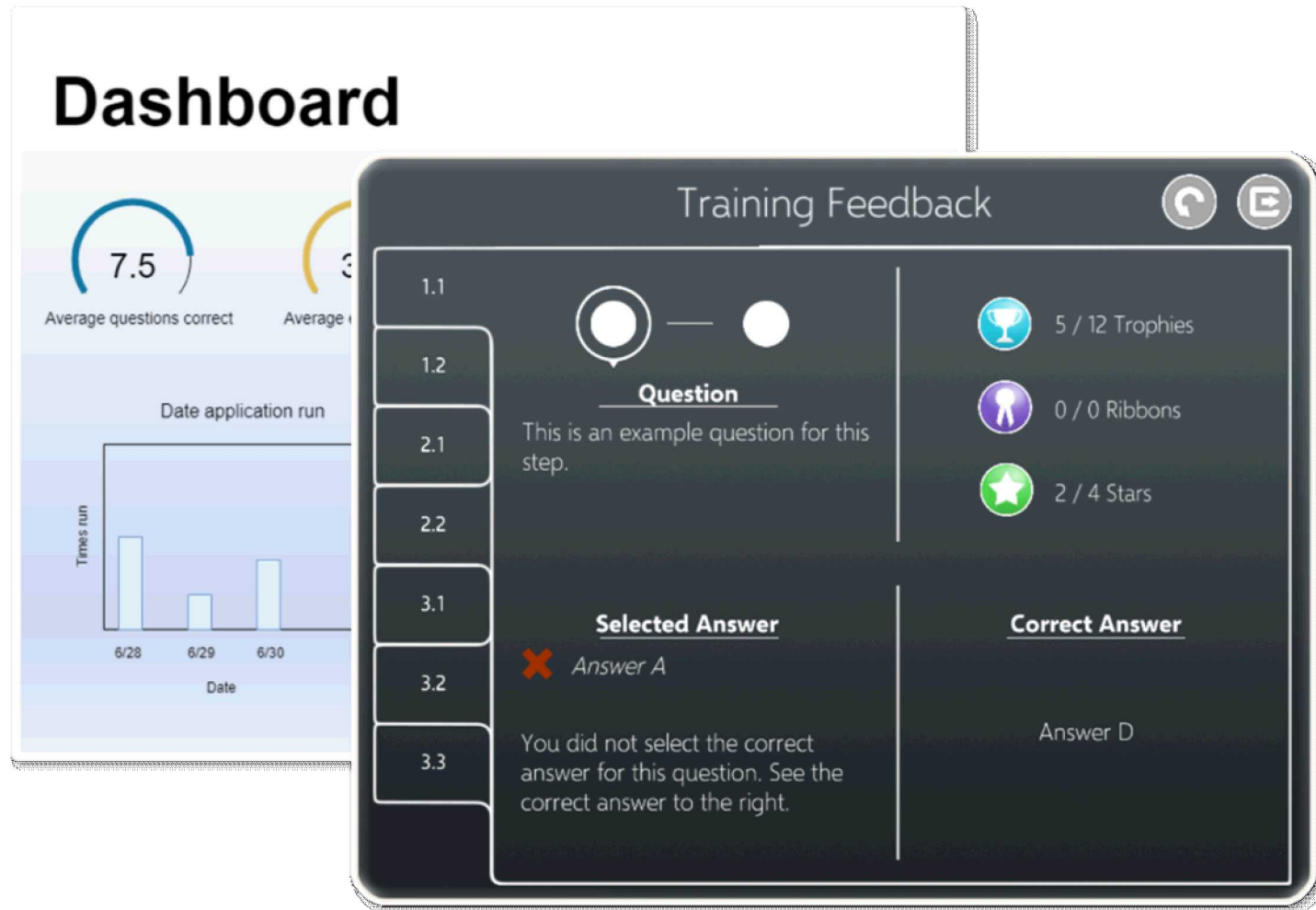
- Small teams with limited budget
- Multiple teams working with the same technical stack
- Supporting a variety of devices
- Architecting for quality attributes that are important for Sandia:
 - Security
 - Performance
 - Modifiability
 - Maintainability



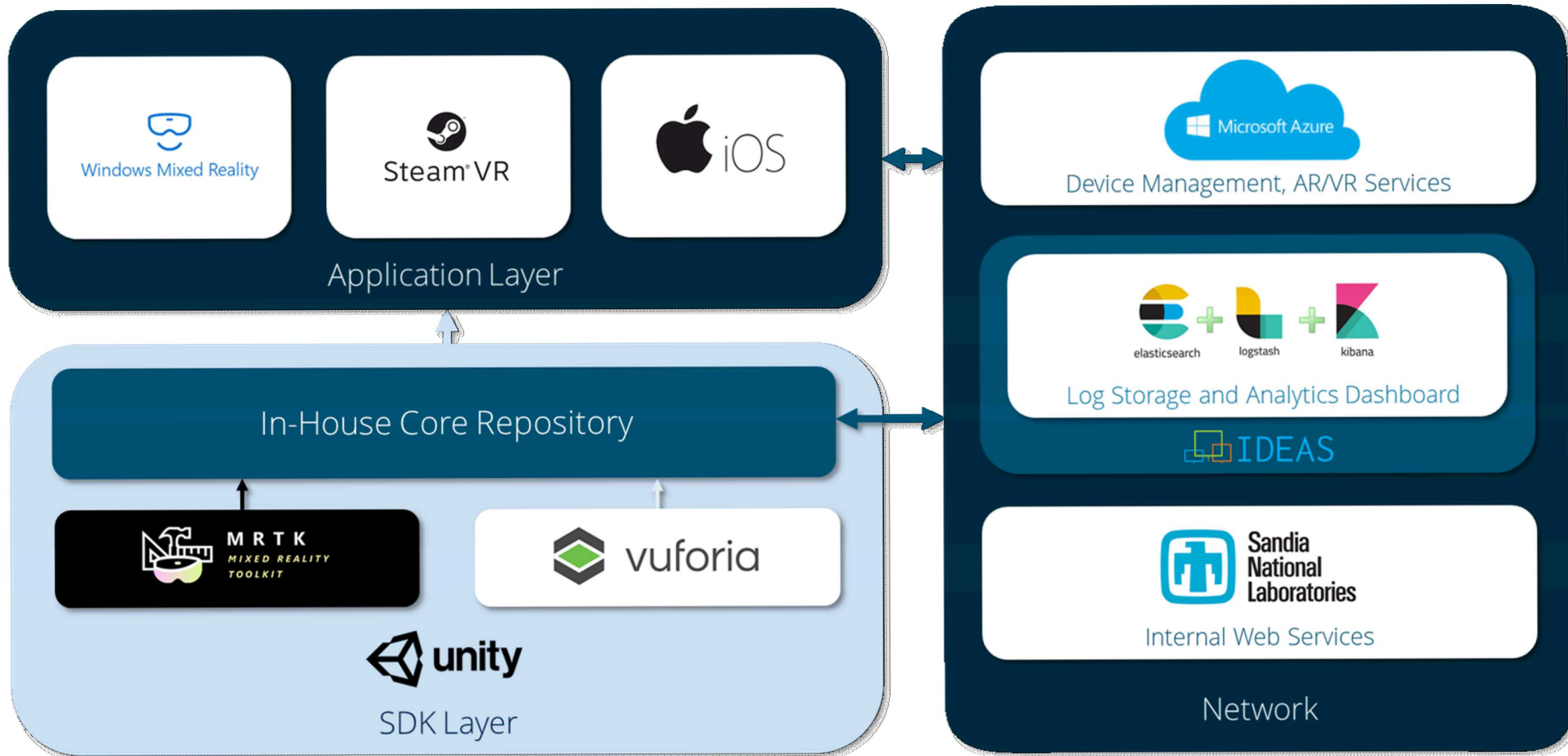
Safety-Focused Training for Engineers

- New hires can learn what they didn't learn in school
- Training is streamlined with the goal to reduce time to competency
- Cost effective, readily available solution
- Augmenting existing training curriculum to reduce time in hands-on training





Target Technical Stack





Core Repository

Cross-Device Portability

- Device-Specific Input
- Graphics Optimizations

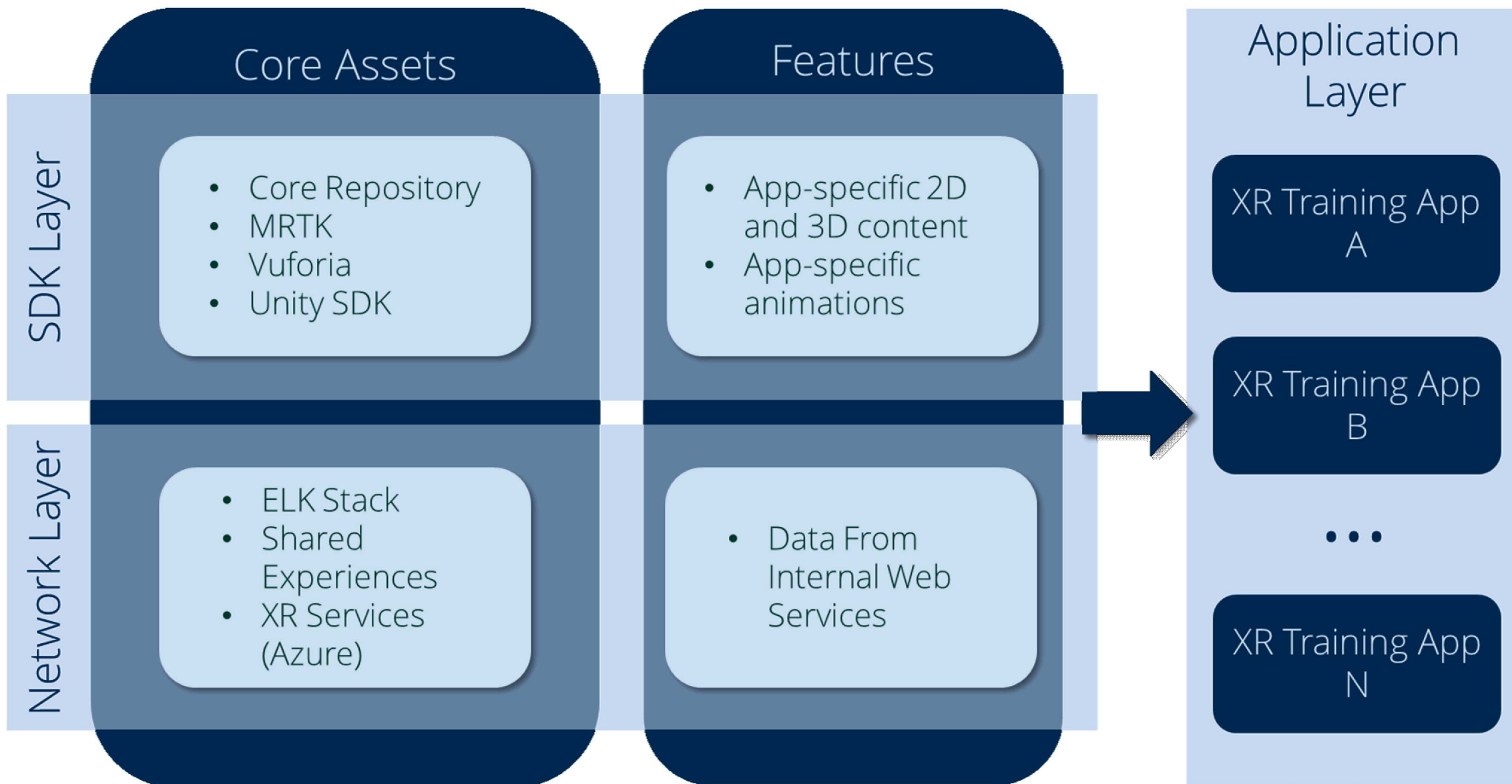
Training Components

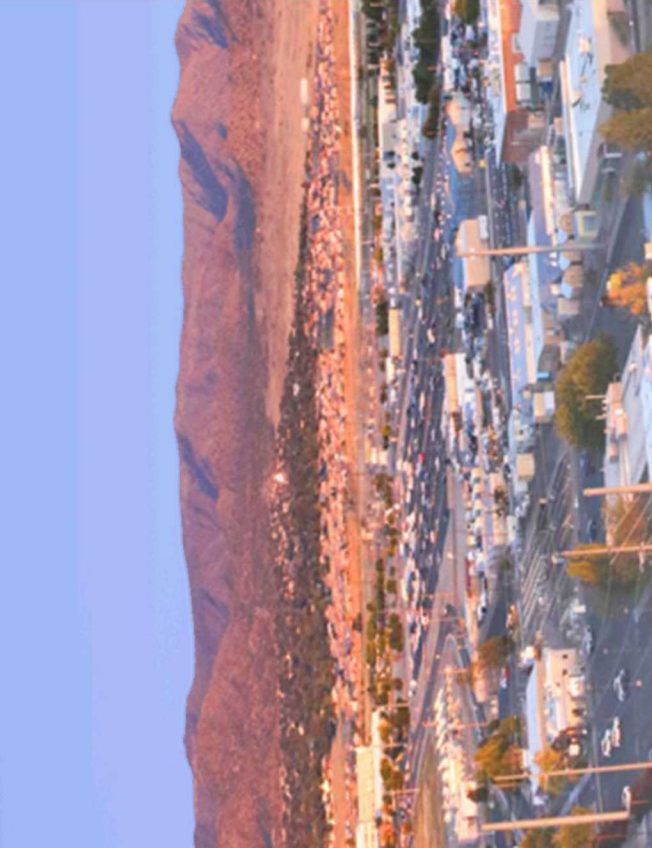
- Virtual Guide
- Step, Question, and Answer Management
- Scoring Mechanism
- Session Metrics

General Reusable Components

- Data Management
- Scene Management
- Logging
- User Interface (UI)
 - Design
 - Management
 - Animations
 - Custom UI Elements

Putting it all together...





Questions?

