



The 3-Tiered SPL Methodology: The Middle Tier

Greetings from BigLever:

Welcome to part 2 of my 4-part newsletter series on the 3-Tiered Methodology for software product line (SPL) development. This newsletter series spotlights a pragmatic new generation SPL methodology that is delivering significant advantages to companies that have implemented this simple, yet innovative approach.

The 3-Tiered Methodology comprises three tiers of capabilities and benefits, where each tier builds upon and is enabled by the previous tier:

- The **Base Tier**: *Variation Management and Automated Production*
- The **Middle Tier**: *Core Asset Focused Development*
- The **Top Tier**: *Feature Based Portfolio Evolution*

For an overview of the base tier, see [Part 1 of this newsletter series](#). The current installment features a synopsis of the middle tier.

The Middle Tier: Core Asset Focused Development

In the middle tier, product quality is significantly increased as engineering management shifts the development focus from traditional product centric approaches to core asset focused development.

At this level, development teams are organized around "core software assets" rather than products. The definition of what constitutes a core software asset is very liberal in the 3-Tiered methodology. A core asset can be a source code component or subsystem, a section within a requirements document, a set of unit test cases, and so forth. A core asset simply consolidates commonality in some asset within the software lifecycle, contains zero or more variation points, and can be used by the product configurator (from the base tier) to automatically instantiate products.

The increase in product quality experienced in the middle tier comes from three sources:

- **Extremely high levels of software reuse.** All development effort on core assets in this methodology is candidate for reuse - 100% reusable - for any or all products in the product line. Even when software variation points are created specifically for one

Getting Started with Software Product Line Practice

Using the 3-Tiered methodology, BigLever has played an instrumental role in the industry's most notable SPL success stories - including Software Product Line Hall of Fame inductees LSI Logic/Engenio and Salion. Experience shows us that the most successful transitions to SPL practice have three primary techniques in common:

- Start with what you've got
- Use an incremental transition strategy
- Create a pilot as the catalyst for change

Regardless of your current stage - from just learning to experienced practitioner - BigLever can help you design and implement a simple, hands-on pilot project as the first step in your incremental transition.

A pilot can simultaneously energize and accelerate your transition, elucidate analysis and design, gain and maintain buy-in, and establish your foundation for full deployment.

BigLever's Getting Started Package

BigLever's *Getting Started Package* is an accelerated program that brings leading-edge software product line methods, knowledge and experience into your organization. This special package - a \$10,000 value - is \$5,000 and includes:

- 3 days of onsite pilot project development and

product, they can potentially be reused in other products at any time in the future.

- **Deep asset expertise.** Because core asset development teams are narrowly focused, they tend to gain deep expertise in the assets they own. That expertise can be leveraged to create a portfolio of feature rich, high quality, and highly competitive products. Core asset teams gain pride of ownership that leads to higher morale and higher quality.
- **Simple and stable organizational structure.** The overall organizational structure is simpler for engineering managers to establish and maintain, compared to a multitude of product teams with shifting resources and deadlines. Because the core asset structure within a SPL architecture tends to be stable as the portfolio evolves, the core asset focused organizational structure tends to be much more stable as well. The number of products in the portfolio is no longer relevant - the organizational structure remains stable for 20 or 200 or 2000 products. This number can scale to the size needed to meet market opportunities, rather than being inhibited by development cost or resource limitations.

This core asset focus established in the middle tier enables the product line portfolio to be developed as a single system rather than a multitude of products.

Compared with early generation SPL methodologies, the middle tier of the 3-Tiered Methodology provides a simpler and more effective approach by eliminating the need for *application engineering* teams and by focusing solely on *domain engineering* in core asset focused development teams.

Since fewer defects are introduced by the core asset teams, the entire portfolio displays higher degrees of quality. Higher quality means less time fixing defects during development, faster and more efficient test cycles, and less time and cost being allocated to dealing with defects in the field. All of this leads to higher customer satisfaction.

Stay tuned as we explore the top tier of the 3-Tiered Methodology, *Feature Based Portfolio Evolution*, in Part 3 of the newsletter series. I welcome your comments, input and real-world experiences with SPL methodologies.

Best Regards,

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Learn more about the 3-Tiered Methodology and new generation of SPL success stories. Request an interactive webinar which can be personalized 'on the fly' for you or your development team.

Please notify BigLever at seminars@biglever.com regarding your preferred date and time.

About BigLever

BigLever Software, Inc. (TM) is a leading provider of software product line development tools and services. BigLever's patent-pending solution, Gears (TM), dramatically simplifies the creation, evolution and maintenance of embedded or standalone software for a product line.

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