



DrupalCon
NORTH AMERICA 2021
HEALTHCARE SUMMIT

Turnkey IaaS, PaaS, & SaaS

Enabling Teams to Quickly Create & Launch Sites



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Michael E. Meyers

Managing Director, Tag1 Consulting



- Over 17 Years in Drupal Community
- VC Backed Startup Founder With Exit
- CTO at Top 50 Website
- Acquia VP DevRel, Marketing, Products
- Tag1 Sales, Partnerships, & Marketing



Tag1 - #2 All Time Drupal Contributor

The Team Global Leaders Trust to Ensure Their Success

The New York Times



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We Support Drupal & Drupal Association

Do You Benefit From Drupal? Fund the DA or a Module Developer



Tag1 Donates a Full Time Sr. Resource to Help Run the Drupal.org Websites,
Tooling & Infra Needed to Create Drupal. Drupal Needs Your Support to
Thrive!



Key Factors Driving Innovation vs. Obstructing Change

⟨tag¹⟩



Success with Tech is Challenging at Scale

Capabilities and Resources Vary Widely Across Teams & Projects



How Large Orgs Build & Support Software, Tooling, and Infrastructure has a Major Impact on Where They Appear on this Spectrum



Success Factor: Facilitating Change

Facilitates Org. Change

Organizations are Hostages of Technology
If They Can't Get Things Done & Drive Value



Success Factor: Freedom of Choice

Facilitates Org. Change

Freedom in Tech Choices

**Minimal or Even No Technology Restrictions:
The Freedom to Choose the Best Tools**

(Warning: Necessary but Very Dangerous)



Success Factor: Enforce Standards

Facilitates Org. Change
Freedom in Tech Choices
Enforce Standards (UI/UX, etc.)

Theme Consistently Reflects Branding,
Accessibility Reqs., UI/UX Standards, etc.
...and Updates Need to be Applied Quickly



Success Factor: Scalability & Reliability

Facilitates Org. Change
Freedom in Tech Choices
Enforce Standards (UI/UX, etc.)
Built in Scalability & Reliability

Engagement, Revenue, etc. all Tied to Speed
Sites Must Always Meet Min. Requirements



Success Factor: Support & Maintenance

Facilitates Org. Change
Freedom in Tech Choices
Enforce Standards (UI/UX, etc.)
Built in Scalability & Reliability
Easier to Maintain & Support

All Sites/Apps Have Support & Maintenance Costs; Unique and Brittle Systems More So



Success Factor: Security & Update Speed

Facilitates Org. Change
Freedom in Tech Choices
Enforce Standards (UI/UX, etc.)
Built in Scalability & Reliability
Easier to Maintain & Support
Security & Speed of Updates

Systems Must Be and Stay Secure
Security Updates Must be Deployed Quickly



Success Factor: Upfront Costs

Facilitates Org. Change
Freedom in Tech Choices
Enforce Standards (UI/UX, etc.)
Built in Scalability & Reliability
Easier to Maintain & Support
Security & Speed of Updates
Upfront Cost to Build Platform

Upfront Build Costs
for a Platform (if any) and or Tooling
Can be Very High



Success Factor: Cost & Time Per New Site

Facilitates Org. Change
Freedom in Tech Choices
Enforce Standards (UI/UX, etc.)
Built in Scalability & Reliability
Easier to Maintain & Support
Security & Speed of Updates
Upfront Cost to Build Platform
Time/Cost to Launch New Apps

Launching New Apps Quickly with an
Economy of Scale is Critical



Success Factor: Total Cost of Ownership

Facilitates Org. Change
Freedom in Tech Choices
Enforce Standards (UI/UX, etc.)
Built in Scalability & Reliability
Easier to Maintain & Support
Security & Speed of Updates
Upfront Cost to Build Platform
Time/Cost to Launch New Apps
Total Cost of Ownership

**Different Approaches to Building Systems
Have Different Pros and Cons**

Can you Have Your Cake and Eat it Too?



Systems Design Innovation vs. Obstruction

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Evaluating & Rankings Approaches

	Solution Type
Facilitates Org. Change	Great
Freedom in Tech Choices	Good
Enforce Standards (UI/UX, etc.)	Meh
Built in Scalability & Reliability	Meh
Easier to Maintain & Support	Meh
Security & Speed of Updates	Meh
Upfront Cost to Build Platform	Meh
Time/Cost to Launch New Apps	Meh
Total Cost of Ownership	Good

→ I'll Identify Different Solutions

→ Discuss How They Rank vs the Key Factors

→ Rating Them from Great to Really Bad

→ This is a Complex Topic Many Variables at Play

→ I'm Making Generalizations in my Assessment

→ Variations Won't Materially Impact Outcome





One Offs Aren't Bad, But a Lot of Them Are

	One Offs
Facilitates Org. Change	Bad
Freedom in Tech Choices	Good
Enforce Standards (UI/UX, etc.)	Bad
Built in Scalability & Reliability	Bad
Easier to Maintain & Support	Bad
Security & Speed of Updates	Bad
Upfront Cost to Build Platform	Bad
Time/Cost to Launch New Apps	Bad
Total Cost of Ownership	Bad

- Difficult to Get Anything Done at Scale
- Just Because You Can, Doesn't Mean You Should
- Difficult to Enforce; Requires People
- Varies Greatly by System, High Effort
- Limited to No Re-use or Sharing
- Release Cycles Long
- Costs Mandate Reuse to Recoup
- Diseconomies of Scale
- At Scale This is a Recipe for Disaster



++ Enforced Standards & Shared Components



Components & Standards Based Systems

Foster Code Reuse & Standards to Accelerate Dev & Reduce Costs

- Corporate/Brand Themes and Accessibility Enhancements
- Integration Into Internal Systems (LDAP, Search, etc.)
- Integration Into 3rd Party Systems (e.g., Box, Slack)
- Feature Enhancements (Editorial/Publishing Workflow, etc.)
- A Robust QA Test Suite and Load Testing Suite
- Easy Integration Into Internal DevOps and Other Tooling
- Pre-approved by Security and Other Compliance Teams



Reuse & Tooling: Lots of Value at Low Cost

	One Offs	One Offs++
Facilitates Org. Change	Bad	Meh
Freedom in Tech Choices	Good	Good
Enforce Standards (UI/UX, etc.)	Bad	Meh
Built in Scalability & Reliability	Bad	Meh
Easier to Maintain & Support	Bad	Meh
Security & Speed of Updates	Bad	Meh
Upfront Cost to Build Platform	Bad	Poor
Time/Cost to Launch New Apps	Bad	Meh
Total Cost of Ownership	Bad	Meh

- Jumpstart Projects, Customization Colsty
- Reuses Relinquishes Some Control
- Better Starting Point, But Hard to Enforce
- Better Starting Point, But Hard to Enforce
- Re-use Lowers Costs
- Better Starting Point, But Hard to Enforce
- Invest in Shared Tools & Components
- Still Expensive & Out of Reach of Many
- Still Very Human Driven

Key Transformative Approach, Builds Buy-In & Support For More Change



++ Enforced Standards & Shared Components



The Power of Components

Great First Step, Builds Trust & Support Needed to Really Transform

- Incrementally Adopted, New Projects Build on the Past, All Benefit
- Establish Social Norms and Internal Open Source
- Expand to Include More Team, Groups, and Divisions
- We Built a New Intranet Proof of Concept in 4 Weeks that WOWed!
- It Launches Next Week & Many Departments Want the Components
- Built Buy-in & Support Needed to Secure Funding for this Platform



SaaS Revolutionary for Specific Use Cases

	One Offs++	SaaS
Facilitates Org. Change	Yellow	Yellow
Freedom in Tech Choices	Green	Red
Enforce Standards (UI/UX, etc.)	Yellow	Green
Built in Scalability & Reliability	Yellow	Green
Easier to Maintain & Support	Yellow	Green
Security & Speed of Updates	Yellow	Green
Upfront Cost to Build Platform	Pink	Red
Time/Cost to Launch New Apps	Yellow	Green
Total Cost of Ownership	Yellow	Green

- Limited to What the System Supports
- Limited to What the System Supports
- Inherent and Enforced
- Inherent and Enforced
- Lots of Sites on One System
- Update All Sites in System Easily
- Big Upfront Investment, Great Return
- Biz Users Mouse Click to Configure & Launch
- Economy of Scale Radically Lowers Costs

SaaS is Game Changing but it Doesn't Work For Every Use Case



++ Enforced Standards & Shared Components



PaaS With Shared Components & Tooling

	SaaS	PaaS++
Facilitates Org. Change	Meh	Good
Freedom in Tech Choices	Poor	Good
Enforce Standards (UI/UX, etc.)	Good	Good
Built in Scalability & Reliability	Good	Good
Easier to Maintain & Support	Good	Good
Security & Speed of Updates	Good	Good
Upfront Cost to Build Platform	Poor	Poor
Time/Cost to Launch New Apps	Good	Meh
Total Cost of Ownership	Good	Good

- Much More Flexibility, Fewer Restrictions
- A Lot More Choice and Control vs. SaaS
- Starting Points, Enforced With Tooling
- Starting Points, Enforced With Tooling
- Common Components Reduces Burden
- Rapid Updates b/c of Common Components
- Big Upfront Investment, Great Return
- Common Components Reduce Costs & Time
- Economy of Scale Radically Lowers Costs

A Great Solution, But Cost/Time Per App is Prohibitive For a lot of Use Cases



++ Enforced Standards & Shared Components



There is No One Size Fits All Solution

	One Offs	One Offs++	1 Giant App	SaaS	PaaS	PaaS++
Facilitates Org. Change	Bad	Meh	Bad	Meh	Good	Great
Freedom in Tech Choices	Good	Good	Bad	Bad	Good	Good
Enforce Standards (UI/UX, etc.)	Bad	Meh	Good	Good	Poor	Good
Built in Scalability & Reliability	Bad	Meh	Meh	Good	Poor	Good
Easier to Maintain & Support	Bad	Meh	Meh	Good	Poor	Good
Security & Speed of Updates	Bad	Meh	Meh	Good	Poor	Good
Upfront Cost to Build Platform	Bad	Poor	Poor	Bad	Poor	Bad
Time/Cost to Launch New Apps	Bad	Poor	Meh	Good	Meh	Meh
Total Cost of Ownership	Bad	Meh	Meh	Good	Meh	Good

No Single Approach Can Meet the Needs of a Large Organization



++ Enforced Standards & Shared Components



A Combined, Layered Approach Wins

	One Offs	One Offs++	1 Giant App	SaaS	PaaS	PaaS++	SaaS++ PaaS++ IaaS++
Facilitates Org. Change	Bad	Meh	Bad	Meh	Good	Good	Good
Freedom in Tech Choices	Good	Good	Bad	Bad	Good	Good	Good
Enforce Standards (UI/UX, etc.)	Bad	Meh	Good	Good	Poor	Good	Good
Built in Scalability & Reliability	Bad	Meh	Meh	Good	Poor	Good	Good
Easier to Maintain & Support	Bad	Meh	Meh	Good	Poor	Good	Good
Security & Speed of Updates	Bad	Meh	Meh	Good	Poor	Good	Good
Upfront Cost to Build Platform	Bad	Poor	Poor	Bad	Poor	Bad	Bad
Time/Cost to Launch New Apps	Bad	Poor	Meh	Good	Meh	Meh	Good
Total Cost of Ownership	Bad	Meh	Meh	Good	Meh	Good	Good

The Holy Grail is Obtainable and the Benefits are Very Real



++ Enforced Standards & Shared Components



SaaS Puts Business Users in Control of Tech Projects That Couldn't Afford Sophisticated Apps Now Can

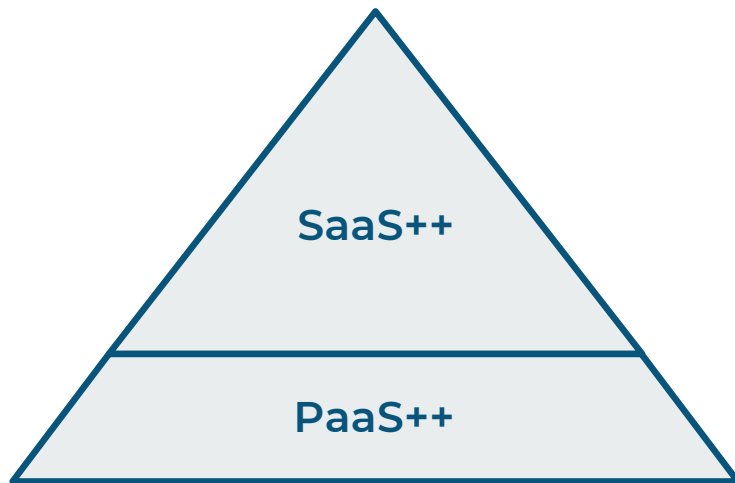


- Very Low Cost, Highly Integrated, Very Capable
- Business Users Self Provision via GUI Interface
- Build off Templates, or Fully Custom Config
- Supports Approval Processes & Dept.
Workflows
- Can Change & Improve it, Unlike 3rd Party SaaS
- Every App/Site Benefits from Enhancements
- Incentives Built-in: Fast, Inexpensive, No Lockin



The SaaS is Built On Top of The PaaS++

Seamlessly Graduate From SaaS as Needs Grow, or Just Start on PaaS



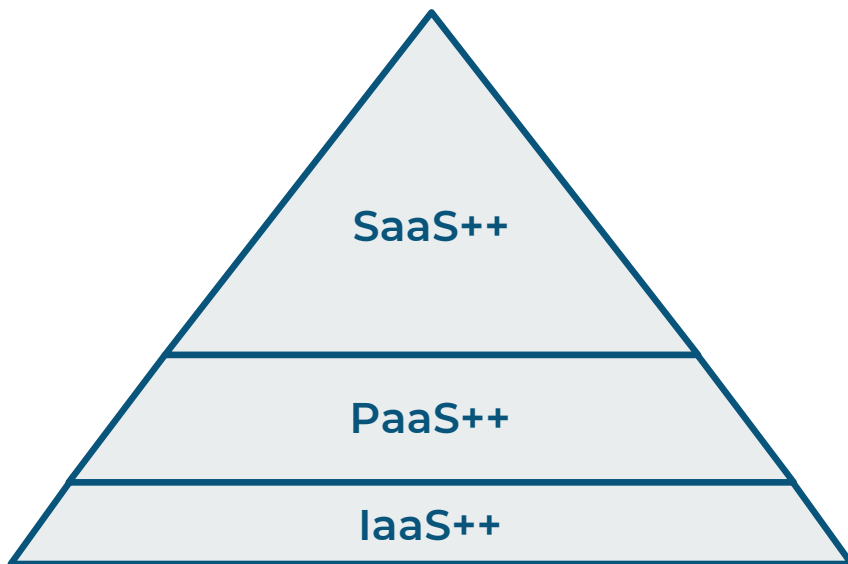
- Users Have Access to Every SaaS Component
- Internal Open Source Across Projects & System
- Complete Control Over Application Layer & Tools
- Teams & Departments Can Create PaaS
- Access to Most of the AWS PaaS Options Services
- Pay based on Usage, Get Managed Services

++ Enforced Standards & Shared Components



And the PaaS++ is Built on the IaaS++

Go as Custom as You Need, Down to the Lowest Levels



- No Restrictions: Move to or Start on IaaS
- Access to All SaaS & PaaS Components
- Teams & Departments Can Create PaaS Services
- Leverage All Infra as Code (IaC) Automation
- Costs More to Decentivize, Still More Cost Effective vs. One-Offs++

++ Enforced Standards & Shared Components



Proliferation of Apps & Sites Fractures

Info

	One Offs	One Offs++	1 Giant App	SaaS	PaaS	PaaS++	SaaS++ PaaS++ IaaS++
Facilitates Org. Change	Bad	Meh	Bad	Meh	Good	Good	Good
Freedom in Tech Choices	Good	Good	Bad	Bad	Good	Good	Good
Enforce Standards (UI/UX, etc.)	Bad	Meh	Good	Good	Meh	Good	Good
Built in Scalability & Reliability	Bad	Meh	Meh	Good	Meh	Good	Good
Easier to Maintain & Support	Bad	Meh	Meh	Good	Meh	Good	Good
Security & Speed of Updates	Bad	Meh	Meh	Good	Meh	Good	Good
Upfront Cost to Build Platform	Bad	Meh	Meh	Bad	Meh	Bad	Bad
Time/Cost to Launch New Apps	Bad	Meh	Meh	Good	Meh	Meh	Good
Total Cost of Ownership	Bad	Meh	Meh	Good	Meh	Good	Good

Great Good Meh Poor Bad

++ Enforced Standards & Shared Components



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Proliferation of Apps & Sites Fractures

Info

	One Offs	One Offs++	1 Giant App	SaaS	PaaS	PaaS++	SaaS++ PaaS++ IaaS++
Facilitates Org. Change	Bad	Meh	Bad	Meh	Good	Good	Good
Freedom in Tech Choices	Good	Good	Bad	Bad	Good	Good	Good
Enforce Standards (UI/UX, etc.)	Bad	Meh	Good	Good	Meh	Good	Good
Built in Scalability & Reliability	Bad	Meh	Meh	Good	Meh	Good	Good
Easier to Maintain & Support	Bad	Meh	Meh	Good	Meh	Good	Good
Security & Speed of Updates	Bad	Meh	Meh	Good	Meh	Good	Good
Upfront Cost to Build Platform	Bad	Meh	Meh	Bad	Meh	Bad	Bad
Time/Cost to Launch New Apps	Bad	Meh	Meh	Good	Meh	Meh	Good
Total Cost of Ownership	Bad	Meh	Meh	Good	Meh	Good	Good
Search Across Applications	Internal Directories, Universal Search Across Sites to Find Data						

Great Good Meh Poor Bad

++ Enforced Standards & Shared Components



Proliferation of Apps & Sites Fractures

Info

	One Offs	One Offs++	1 Giant App	SaaS	PaaS	PaaS++	SaaS++ PaaS++ IaaS++
Facilitates Org. Change	Bad	Meh	Bad	Meh	Good	Good	Good
Freedom in Tech Choices	Good	Good	Bad	Bad	Good	Good	Good
Enforce Standards (UI/UX, etc.)	Bad	Meh	Good	Good	Meh	Good	Good
Built in Scalability & Reliability	Bad	Meh	Meh	Good	Meh	Good	Good
Easier to Maintain & Support	Bad	Meh	Meh	Good	Meh	Good	Good
Security & Speed of Updates	Bad	Meh	Meh	Good	Meh	Good	Good
Upfront Cost to Build Platform	Bad	Meh	Meh	Bad	Meh	Bad	Bad
Time/Cost to Launch New Apps	Bad	Meh	Meh	Good	Meh	Meh	Good
Total Cost of Ownership	Bad	Meh	Meh	Good	Meh	Good	Good
Search Across Applications	Universal Search						
Share Content, Phase Migrate	Decoupled Front Ends - Share Components, Migrate Systems						

Great

Good

Meh

Poor

Bad

++ Enforced Standards & Shared Components

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#Tag1TeamTalks and Blogs

More About this Project and Innovations in Drupal & Web Dev



**Automating
Infrastructure**
[Tag1.com/Pulumi](https://tag1.com/Pulumi)



Real-Time Collaboration
[Tag1.com/Yjs](https://tag1.com/Yjs)



**Performance &
Scalability**
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Q & A





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