



steemit

# 2017 Roadmap

<https://steem.io>

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# Introduction

Thank you for taking the time to review our 2017 Roadmap. This document is composed of three sections, one each for Steemit, Inc: the organization, steemit.com: the social media application, and the decentralized Steem Blockchain and Platform.

Note well that this document does not include a complete view of the functionality that we will eventually implement: some smaller features not included here we will ship in 2017, and many important things we will tackle only after these major initiatives are complete, in 2017 or beyond. This document outlines only those we have identified as the most pressing in the short term.

One thing that may seem missing from this document is our communications plan for serving the existing social community—we haven't forgotten about you! This document is not all-encompassing and we are currently evaluating various plans for establishing a dedicated team to manage and improve external communication, both with the existing steemit.com user community as well as the wider world of blockchain and liberty enthusiasts. Stay tuned!

We have a ton of huge plans for the platform and steemit.com (far more than can fit into one document!), and are tremendously excited to share this first set with our amazing community.

## Goals

Our long-term goal remains the same: to provide the best platform for censorship-resistant publishing and store of value to the widest user base possible, in an effort to increase human freedom and accelerate the spread of access to basic rights for all people on Earth.

In doing so, by growing the Steem Blockchain, we will have created a permissionless, censorship-resistant data layer for the entire Internet. The first obvious application is publishing, but the possibilities for applications on the platform are limitless. Vastly expanding this community has the notable side-effect of placing STEEM in the forefront as the ultimate blockchain-based currency.

Our primary short-term goal is to drastically increase the number of weekly signups, weekly active users, and weekly social interaction events on steemit.com. It is our belief that in our attention economy, more readers, reading more writers, performing more interactions is the single best way to develop the overall value of and to the community, and thus the Steem Blockchain and its economy and token.

Simultaneously with user growth, it is essential that we provide support and resources to entrepreneurs and developers building upon the Steem Blockchain as a platform. We recognize that steemit.com will be only one of many killer apps built upon the Steem Blockchain, and it is our goal to empower as many as possible who wish to build upon our platform and incredible community.

To this end we have established a set of priorities for the near future upon which to focus our efforts.

## Summary

This document exists for you: the user: the entrepreneur, the developer, the writer, the reader. We understand the challenges you face, and want to provide a predictably moving target for our ecosystem so that we can grow together.

It includes our organizational plan for Steemit, the company, and how we work. It partially specifies the social features and functionality we will implement presently for steemit.com, the social application. Finally, it dives into the underlying blockchain technology we will design and implement to support the use and scaling of the network far into the future.

# TL;DR. (Roadmap Overview)

1: [steemit.com](https://steemit.com)

- Migrating all services to auto-scaling, self-healing infrastructure.
- Useful blockchain data microservices for both internal and external developers to accelerate application development.
- “Batteries Included”: Highly available public service endpoints for third-party developer quickstart.
- An Ethos of Deliberate, Reasoned Design
- Steem Login and signing service for safe and easy third-party app integrations.
- Rebranding: new logo, colors, logotype to distinguish the social app from the blockchain.
- UI: Design language overhaul for all user-facing application UIs.
- Apps: We’re developing iOS and Android native mobile applications.
- Feature: Free image hosting.
- Feature: Comment moderation for post authors.
- Feature: Community Namespaces and Moderation.
- Feature: New user tutorial.
- Feature: Achievements and User Insignia.
- Feature: Mobile notifications.
- Feature: Easy-to-understand status bar.

## 2: Steem Blockchain

- [steem.io](https://steem.io): A platform dashboard view into the current state of the Steem Blockchain.
- [developer.steem.io](https://developer.steem.io): World-class developer documentation for rapidly building Steem Blockchain apps.
- Officially supported client libraries for JavaScript and Python.
- Feature: Greatly reduced blockchain account creation costs, minus the spam.
- Feature: Arbitrary splitting of post rewards, for revenue splitting.
- Scalability: The future is parallel.

## 3: Steemit, Inc.

- Physical Decentralization: a global team headquartered on the Internet.
- Internet-speed internal team communications.
- Automatic tests and builds for all code, with easy one-command deployments to reduce latency to production for completed features, allowing developers to focus on development.
- We're hiring the best talent globally.
- We plan to decentralize the @steemit account stake.
- All of our software will remain free (as in freedom) software.

# steemit.com, The Social Application

## High Availability, Scalable Infrastructure

The use of a blockchain allows for nearly unlimited horizontal scalability of read operations, however the current steemit.com beta web hosting infrastructure has been architected to provide service on a best-effort basis. We are in the process of automating the deployment of our software into Amazon Web Services (AWS) Elastic Compute Cloud (EC2), providing for nearly unlimited, automatic horizontal read scalability of web site hosting as site traffic grows. Additionally, the use of a self-healing, automatically expanding and contracting pool of services provides high availability (HA) in the event of any system failures or disasters, ensuring no single points of failure (SPoFs) in the supporting services for the public-facing web site. This allows us to focus all of our time and attention on development of the site, software, and community, not on scaling or maintaining servers or hosting infrastructure. This project should complete in early Q1 2017.

## Developer and Startup Friendliness

While the peer-to-peer nature of the blockchain allows every participant to build out their own infrastructure in a decentralized manner, many new developers and startups coming to the platform have neither the time nor resources yet to operate their own. Between our infrastructure upgrades allowing users and developers to depend 24/7/365 on our highly available web service endpoints to run their businesses, as well as specific site and service features designed with rapid prototyping and ease of developer access in mind, we provide a clear upgrade path for new users to the platform: from quick weekend hacks all the way up to Serious Business—without having to learn new blockchain-specific paradigms or programming APIs.

We operate a web site and experienced web developers should not need to learn new technologies to build new applications and businesses atop the Steem Platform. Such a

circumstance is achieved by features available via the web at steemit.com specifically designed for rapid development by third parties.

All such functionality will be clearly and simply documented on our developer site, reducing time-to-market for newcomers.

## Lower Latency To Production (CI and CD)

Some people have compared software that has been developed but not yet deployed to a dealership lot full of cars not yet sold: sunk costs that are not yet generating returns. Through the use of modern best practices surrounding automated continuous integration testing (CI) and continuous automated deployment (CD), we intend to reduce this window as much as is practical.

Our target for automated testing of all new code in our repositories is 30 minutes or less, and deployment in 1 hour or less to our staging environment, and 24 hours or less to end-user-facing production systems. (As our automated testing systems improve over time, we hope to further reduce these an order of magnitude over the following 2-3 quarters.)

This is part of our deployment into AWS, and will also complete in early Q2.

## An Ethos of Deliberate, Reasoned Design

The most compelling digital experiences are those that are unencumbered by use of the tools to participate. With the help of some of the world's leading User Experience (UX) designers, we are refocusing our efforts on an extremely functional, discoverable, user-centric design that permeates all of the interfaces we build across the entire spectrum of web and mobile. Our ethos is that consistent behavior from a set of clean and uncluttered interfaces reused consistently across our applications is the best way to "get out of the way" to allow users to engage in the thrill of rich discussions.

Target: Throughout 2017 and beyond.

## Service: Drag-and-Drop Image Hosting

A free, easy-to-use, integrated image hosting service will be deployed transparently alongside steemit.com, permitting anyone posting via steemit.com to drag-and-drop any image on their computer into any post or comment.

This feature is mostly complete, and will be available in Q2.

## Service: Blockchain Data Microservices

While we periodically update the steemit.com site with minor developer-friendly machine-readable data features, we will also be providing stable and reliable service endpoints to deliver various blockchain and blockchain-derived data via standard HTTPS.

Target: Q1, with additional services published periodically thereafter.

## Feature: Comment Moderation For Post Authors

Authors are the source of the content that drives the site and the platform, generating the attention that provides the ultimate value to the Steem Economy. We believe that post authors should be able to decide which comments are displayed on the steemit.com site below the content that they produce, and we will be allowing post authors to indicate which comments they would like hidden. This will be published as advisory moderation data into the Steem Blockchain, and steemit.com will respect this data and decline to display such moderated comments. Of course, all data, including original comments and moderation instructions will be published permanently in the blockchain for review by those curious. This allows both censorship resistance for unpopular or fringe ideas, as well as a copacetic reading experience for more mainstream members of a particular author's audience.

Target: Q2



## Feature: Moderation and Community Namespaces

We believe that high-quality content and communities of content producers and their audiences are the primary driver of growth of the steemit.com site, and in turn the wider adoption of the platform and STEEM. To this end, we wish to enable many users to build communities in parallel around curating specific types of content valuable to their audiences.

To enable this, we intend to augment our current tag-based organizational structure for posts with a new system called "communities", a special group into which others can post articles. Two types of communities will exist: communities into which anyone in the world can post (where community founders (or their delegated moderators) can decide, post-hoc, which posts to hide from view) or communities in which only community founders' (or their delegated authors') posts will appear.

This system of moderation will function identically to the aforementioned comment moderation system, with all content (including hidden or moderated content) published permanently in the blockchain to prevent censorship. The steemit.com web site will respect the display preferences of the specific community maintainers (within their own community namespace only) while simultaneously propagating every participant's voice throughout the blockchain to the entire world (regardless of moderator opinions).

We believe this unique approach finally solves one of the largest problems currently presented to social media services: the dichotomy between maintaining a high Signal-to-Noise Ratio (SNR) for a quality content experience free of spam and low-value comments, whilst simultaneously preventing any type of censorship.

It is our hope and design goal for our services (all of which are published with full source code for easy deployment by anyone) to be replicated by others, displaying content according to the wishes and whims of each individual website operator, giving readers ultimate choice over the set of moderation opinions they wish to heed.

Finally, a set of to-be-determined cosmetic features of a community's profile page will be configurable by the community maintainer(s), to engender a feeling of ownership and control over the namespace.

Target: Q3

## iOS and Android Mobile Applications

According to a prominent social media company's S-1 filing with the US Securities and Exchange Commission: "users continue to increasingly access <prominent social media company>'s mobile products as a substitute for access through personal computers". All data we have available suggests that most mainstream internet users have already or will soon stop using traditional personal computers to access the internet, opting instead for mobile devices exclusively.

Our intent is to develop our mobile experience and build feature-rich, native applications for both platforms efficiently by sharing as much of the codebase as possible between the two. Our research into the available developer tools for such reuse results in our belief that 80-90% of the code will be shared, requiring us to rewrite only a small fraction of the application in native Objective C (for Apple iOS devices) and native Java (for Android devices).

Such applications, at launch, will feature the updated steemit.com brand identity and design language outlined below.

This is an ambitious goal. High-quality, performant mobile applications, even with significant code reuse between the two platforms, is an extremely time-consuming undertaking, and we do not anticipate shipping these until the end of 2017.

Target: Q4

## Steem Login and Signing Service for Third-Party Applications

Third-party applications that wish to integrate with the Steem Blockchain can do so easily via existing tools. Accessing and displaying data from the blockchain is straightforward and will become even simpler as more of our developer-specific features ship.

However, applications that wish to permit users to take actions and publish data into the blockchain face challenges surrounding the private and safe handling of users' cryptographic keys. Handling such high-value cryptographic key material is risky, error-prone, and exposes users to potential fraud should a third-party site suffer from a vulnerability or breach (as has occurred many, many times with other cryptocurrency applications). Each site that wishes to permit users to log in to that site with their Steem Login, post content, vote, or send payments should not have to re-solve these same troublesome problems.

We intend to build a special application known as a "signing service", easily integrated by third-party sites, whereby such sites can request the performance of a specific action by a given user. Users will be able to pre-configure such access on a per-third-party-site basis, with the signing service remembering their preferences. Sites requesting new access will cause a user to be prompted with a confirmation, containing a clear and unambiguous indication of the action to be performed on their behalf. This special application will be operated and secured by Steemit in accordance with the highest levels of security and prudence. Users will be discouraged from providing their keys to third-party sites, though ultimately nothing technically prohibits them from directly using any site they wish (should they choose to eschew our protections).

Use of the signing service by third-party sites that are discovered to be fraudulent or breached will be temporarily or permanently suspended by Steemit, Inc, protecting users from attack without their intervention.

Care will be taken to ensure that Steemit, Inc never has the power to unilaterally act on an account's behalf, preventing us from being in any custodial position over end-user STEEM, Steem Dollars, or Steem Power.

Target: Q3

## Rebranding of steemit.com

Presently, the logo and brand identity used by steemit.com is identical to that used to indicate the Steem Blockchain and platform. This poses a significant risk of confusion to new and casual users: Is a site that displays the generic blue Steem Blockchain logo safe to trust with one's cryptographic keys that provide the ability to transfer their STEEM away? (The answer is "usually not".) New users and even existing community members have frequently been observed conflating the Steem Blockchain with Steemit, Inc. and the steemit.com website.

A new logo, logotype, and clearly distinguishing color scheme will be developed for steemit.com to differentiate it from the Steem Blockchain (which will continue to use the existing, widely known logo).

This rebranding will be especially significant to the Steemit, Inc-operated signing service, indicating clearly to end users that the site is safe to use with their valuable cryptographic keys.

Target: Q3

## Gamification, User Onboarding Improvements, and Feature Discoverability

The Steem Blockchain has many rich features and abilities, but proves to be too complex for new users of steemit.com to grasp in full. We intend to streamline and improve the experience of users during their signup and first dozen actions, walking them through the basics of the platform and guiding them as they take their first actions on the site. This takes the form of several different elements.

## *Discoverability: Tutorial / Walkthrough*

Research indicates that guided tutorials increase correct formation of mental models, and new users will be presented with a short walkthrough of primary site features and actions, earning their first achievements on the site within a few minutes of signup.

Target: Q4

## *Gamification: Achievements and Username Insignia*

A system of achievements, similar to those used on Foursquare or Stack Overflow, will be introduced to the site and obtaining the first few of these will be achieved as the tutorial is completed, however the vast majority will not be part of the tutorial. Particularly important achievements will be featured prominently beside a user's username in the form of insignia—everywhere their username may appear on the site. Many sites and services have sprinkled a layer of gamification on top of their user experience (e.g., Reddit and Snapchat) but frequently they have taken a back seat, hidden under layers of navigation. We intend for achievements and username insignia to be first-class, front-and-center features of the site, integrated heavily and consistently with the display of user identities across all pages and views both on the web and on our mobile applications.

While achievements are the very first elements of the new user tutorial and will be essential touchstones for onboarding, their potential value in exciting and delighting longstanding users of the site cannot be understated. Much like rare drops in online role-playing games, we hope to provide extremely rewarding goals for newbies and whales alike via designing thoughtful and specialized achievements that can be displayed prominently on profiles or via clear and distinguishing username insignia.

Target: Q3

## *Retention: New-User Prompts*

Following the completion of the tutorial, user lifecycle management will be employed, classifying users into various segments based on post-tutorial task completions and

achievements unlocked, and email and mobile notifications will be presented to various segments to encourage and reward task completion based upon our own, data-driven research into the relative retention value of the target segment. Steemit may even promise and provide Steem Power bonuses to various segments to incentivize pursuit of certain achievements (perhaps larger ones for particularly difficult achievements, or a series of small bonuses along a chain of demonstrated retention-improving tasks).

Target: Q4

### *Discoverability: Status Bar*

A site-wide status bar, visually indicating various attributes of the currently logged-in user's account, will be displayed, making otherwise opaque information in the blockchain and user's profile clearly understandable with measured use of bright colors and visually striking meters to encourage and reward daily participation. Small sound effects and animations may be A/B tested to determine their efficacy in promoting regular and repeated engagement with primary site features such as voting and commenting, especially within high-performing communities.

It is essential that we distill the hidden models of the functioning of the Steem Blockchain into clear, simple, visual indications that can be easily understood by all users.

Target: Q3

## Site Instrumentation and User Understanding

Our deep understanding of the ways users experience and interact with steemit.com will be key to ultimately inducing widespread habitual use. Modern web technologies make it relatively straightforward to collect this information in a secure and privacy-protecting way, and we will periodically purge all of our anonymized instrumentation data several times each year to ensure user privacy.

In-person application usability testing, careful attention to retention rates across various segments of task completion, and data-driven experiments will light our way down this path. We will make at least one hire specifically dedicated to fully understanding the usage data generated by our real users and focus our development efforts on making the site and applications as engaging, fun, and rewarding as possible.

Target: Q3

## Design Language Overhaul

Presently, the steemit.com User Interface (UI) has evolved incrementally on an ad hoc basis from prototype, through alpha, to the current beta. To indicate our “1.0” launch in 2017, we intend to overhaul the design language and UI style across the website, mobile website, iOS, and Android applications.

This is actually a two-phase process. Initially, the current UI is refactored into a reusable UI component library which is used exclusively by the steemit.com code for the presentation of interface elements. All new development will use the component library exclusively, as well. This is already underway.

As the component library will mirror the existing UI elements, this should be mostly invisible to end users, but will speed future development efforts and reduce overall UI bugs.

In the second phase, a new design language and style will be developed and prototyped. A single update to the component library should deploy this new design language throughout the website and both mobile applications. This is expected to require significant engineering effort to bring from prototype to production-ready.

This is an ambitious undertaking due to the extreme complexity of building, validating, and debugging rich, responsive HTML/JS interfaces that work optimally across many different web browsers and our mobile applications.

Target: Q4

# Steem, The Blockchain and Platform

## steem.io: A Platform Dashboard

Our intent for steem.io is a central location showing the growth of the Steem Platform over time. A selection of important top-line metrics will be provided as simple, easy-to-understand charts, as well as machine-readable structured data feeds updated in real time.

A very simple overview and description of the platform will be showcased, suitable for press and media, along with short bios and small headshots of the Steemit internal team, prominent witnesses, community members, developers, and platform entrepreneurs.

Target: Q2

Prominently featured on steem.io will be a large call-to-action that invites developers to...

## developer.steem.io: World-Class Developer Documentation

The ultimate source of growth and thus value of the Steem Blockchain and platform itself is third-party developers. Most of our other efforts would be wasted without an easy and direct process for fresh developers, brand new to the platform, to quickly and rewardingly prototype innovative applications and business ideas.

The developer site we will launch at developer.steem.io will feature a clear, easy-to-understand structure indicating a full list of public services and endpoints, officially supported client libraries and software, and API documentation with excellent example code to get brand new developers up and running quickly on the Steem Blockchain. Internal user experience testing of the site will ensure we are communicating our full stack effectively to all comers.

Target: Q2



## Officially Supported Client Libraries

The community has developed excellent client libraries in Python and JavaScript, and Steemit has developed its own for JavaScript. We will decouple our client libraries from our existing applications, and will test, publish, and version them separately for easy re-use by third parties.

It is our hope to work closely with the responsible community members for other languages to publicize a list of officially supported and updated libraries, named consistently across languages, and available via commonly used public package libraries (GitHub, npm, PyPI, et c).

These will be showcased prominently and attractively on [developer.steem.io](http://developer.steem.io), along with quickstart guides, example code, and working public endpoints for rapid prototyping by anyone.

In the future, should sufficient value to the community be demonstrated, Steemit, Inc. may sponsor development of additional officially supported client libraries in languages such as Go or Ruby.

Target: Q2

## Reducing Blockchain Account Creation Cost

The cost to create accounts is an impediment to rapid user growth, especially for third-party applications and startups that want to onboard new users to the platform. We have been researching several different methods to significantly reduce the cost to create accounts in ways that do not permit spam, abuse, or namespace pollution, while retaining censorship resistance and full decentralization.

An internal specification of these changes is in progress, and will be shared with the community when complete in a similar fashion to our previous consensus change proposals.

Target: Q3

## Steem Blockchain Feature: Post Reward Sharing

At the inaugural Steemfest in Amsterdam this year, one piece of feedback we heard repeatedly was the request that third-party services could somehow generate revenue through their direction of new users to the platform. To enable such a feature, a way of splitting the rewards for a given post to multiple parties must be developed.

Such a feature could also be used to enforce per-post revenue sharing between the author and a community into which the post is published, blocking posts without the requisite revenue split from being displayed in a community. A general solution is allowing for arbitrary splitting of a post's rewards to a list of parties—such as author, hosting provider, blog site, or referrers—to provide for different business models and applications.

Target: Q2

## Steem Blockchain Feature: Multi-Chain Parallelism

The backend team at Steemit have designed a fundamentally new architecture, initially conceived to solve the scalability problem presented by a linear blockchain bottlenecked by the performance of a single processor core: a blockchain grows in size faster than the fastest available single processor cores increase in speed. The new architecture is a fabric consisting of multiple blockchains, one of which handles each distinct feature provided by the platform. The state of each entity within the blockchain can then be moved between blockchains with small synchronization delay (on the order of 30 seconds). This allows all of the blockchains in the fabric to use the same design set of witness nodes to produce blocks, STEEM and Steem Dollar tokens, user account identities, etc.

This “fabric” architecture offers great benefits in scalability, performance, fault isolation, and modularity due to the fact that each of its component blockchains can operate on its own processor core or even its own server. This greatly improves the ability of blockchain participants (server operators such as witness nodes that produce blocks, or businesses building applications on top of the Steem Blockchain) to cost-effectively and efficiently

process all blockchain data as the user base and thus total data size of the platform increases 10- or 100,000-fold.

One of the most exciting implications of the fabric architecture is enabling iterative experimentation of new features. The fabric architecture enables entrepreneurs or community members with good ideas for blockchain-level features to implement those features in a way that interfaces with the rest of the fabric and allows the new features to be used in a live environment, yet is isolated enough that any failed experiment does not affect the security, stability or long-term maintenance of the rest of the fabric. This compartmentalized, modular approach applies not only to third-party enhancements, but is in fact how all of the chain's core functionality will be implemented under the new architecture; even the most core functions like account creation, block producer selection, and supply of STEEM. In addition to its scalability benefits, the fabric architecture will greatly improve the development experience—decreasing the cost and increasing the pace of innovation—for both Steemit's own team, and for anyone who wants to build on the Steem Blockchain as a platform.

This is perhaps the most ambitious project ever undertaken by Steemit since the initial creation of the Steem Blockchain, and we anticipate it taking a majority of 2017 to complete.

Target: Q4

# Steemit, The Organization

## Physically Decentralized, Global Talent Pool

The Steemit organization was founded and initially staffed in the Blacksburg, Virginia region. This allowed the small team to coordinate without specific effort, as conversations could happen in person.

This approach is ultimately not scalable when hiring from a global, decentralized talent pool. There is tremendous value in the community and ecosystem surrounding the Steem Blockchain, and it allows us to mostly bypass one of the hardest problems a startup traditionally faces: recruiting top-tier talent.

However, most of these available community members will not be willing or able to relocate to rural Virginia for a variety of reasons. Focusing on keeping the organization physically decentralized is key to availing ourselves of this tremendous resource.

## Asynchronous Communication and Coordination

In service of a physically decentralized team, whilst maintaining an office with a subset of the staff in Virginia, we must strive to prevent building two tiers of internal communication quality. Thus, all staff, regardless of location, use the same tools and interfaces to coordinate amongst their team. This prevents creating a split between “local” and “remote” workers. There is no “remote”.

As a 24/7 global organization, our choice of tools is specifically biased toward asynchronous communication to enable maximum productivity without having to seek out information from other staff. Large meetings are avoided and written communication is default.

## Scaling Up

Our team, since January 2016, has gone from seven people composed of three front-end developers, two back-end developers, and two founders—to a team of 15. We intend to

increase that headcount, further, adding additional staff around site design and development, DevOps (scaling and site reliability), product leadership, user experience and interface design, mobile application development, community outreach, and user understanding (marketing, traffic insights, retention, and audience growth).

## Decentralizing Stake

The Steemit, Inc.-controlled primary account, @steemit, which holds approximately 41% of the platform's Steem Power, will be gradually divested of its holdings in an effort to increase promotion and development of the platform, and this distribution shall further the platform's security through decentralization of voting power.

Several methods will be employed, including and not limited to: funding the continued research and development of steemit.com, the Steem Blockchain's first and best application, promoting and publicizing the Steem Blockchain and features, hosting highly available services for platform users, sponsoring conferences and community gatherings, and sponsoring undertakings to build applications and increase user adoption across the entire ecosystem.

This will likely be a multi-year process, but is included in this 2017 Roadmap for the sake of clarity and understanding surrounding our organization's plans and goals.

We have several very large initiatives currently in research serving this goal, and the community should expect further announcements later in the year regarding our firm plans as it yields fruit.

Ultimately, the goal is to harmoniously align the interests of all participants across the entire spectrum of people using and trading in STEEM.

## Free Software

We are committed to the spirit and values of Free Software (free as in freedom (not as in beer)). To this end, as far as is practical for us as a company, we intend to continue to publish

the full source code to all of our production software and services with permissive free software licenses for use by all. It is our hope that many others replicate our successes, building many different sites, services, and businesses on the Steem Blockchain using our tools and methods, and we intend to fully support such reuse by providing full build scripts, supporting documentation, and up-to-date, ready-to-run, pre-built container images.