



## HOW RUBY ON RAILS BECOMES THE IDEAL PLATFORM FOR WEB APPLICATIONS DEVELOPMENT?

Ruby on Rails is one of the hottest tech trends of 2016. ROR's rapid development using its available libraries (called gems), low cost nature, ease of use, flexibility, content handling efficiency, high-end customization, programming friendly language and web framework force companies to choose ROR.



# INTRODUCTION

<b>Intro</b>	03
What is Ruby on Rails	03
<b>Why Ruby on Rails</b>	04
Tight Structure	04
Powerful Features	05
<b>Behavior Driven Development with ROR</b>	07
Accelerated Development	07
Integrated Testing	08
<b>Improved Productivity with ROR</b>	09
<b>What's trending in Ruby?</b>	10
Mruby	10
SciRuby	10
Bots	11
Service-oriented architecture	11
<b>Suyati's Ruby on Rails Success Stories</b>	12
Publishing	12
Administration & Staff management	12
Media & Entertainment	13
<b>About Suyati</b>	14

# INTRODUCTION

Software development is in the midst of a paradigm shift. The changing business environment, marked by fast-paced developments force software developers to get out of their cozy reactive ecosystem and take a proactive approach to developing cutting-edge software that enables the enterprise to seize the moment.

In such a changed world, Ruby on Rails is gaining increased favor, as a web application development platform that best serves the requirements of rapid development and deep collaboration. Ruby on Rails or ROR, as it is popularly known, extracts and streamlines the common and repetitive tasks. It thus makes application development simple. Before we look into how ROR helps New Product Development, let us have a fair understanding of the platform.

## What is Ruby on Rails?

Ruby on Rails (ROR) is an open source web application development stack. It comprises the Rails framework, which has been developed using Ruby, a pure object-oriented language.

The Ruby language has been around for long. **Ruby on Rails was developed about 20 years ago**, by a Japanese developer Yukihiro Matsumoto, to fill the void of a powerful object-oriented scripting language that makes app development easy and effortless.

Ruby on Rails is an in-built MVC (Model View Controller) architecture framework, with some similarities to Perl and JavaScript. However, it is also an elegant object-oriented language, noted for its compact code and remarkably

short development time. More than 200,000 websites now use Ruby on Rails in one form or another and this list includes the big shots including Amazon, BBC, Cisco, CNET, GitHub, Hulu, JP Morgan, Living Social, NASA, Twitter, Yahoo, and Scribd. ROR has gained such kind of popularity and wide acceptability owing to its versatility, agility, speed and ease of adaptation that it offers. Unlike PHP, Ruby is Object Oriented from the ground up and offers a very concise and powerful code. [Checkout our blog](#) to know more.

---

## WHY RUBY ON RAILS?

In the above section, we saw why ROR becomes a preferred platform for application development. Let us take a look in detail on the features of ROR that offers advantage to developers and businesses alike.

### Tight Structure

A key strength of Ruby on Rails is its championing convention over configuration. ROR follows MVC architecture and only allows the code to say that in the design pattern. ROR enforces a tight and organized structure to the code, which eases maintainability and facilitates easy scaling as and when needed.

Ruby is a dynamically typed language. Developers need not declare the type of a variable before using it, or properly type method signature parameters. Doing away with all type declarations and interface declarations reduces the code base by **10% to 20%**.

ROR supports almost all databases, and also makes it very easy to port from one database to another. Invoking a few lines of ROR code provides a simple

interface to edit the data on the web itself, with the platform undertaking all the messy hard work in the backend. The migration framework on offer enables revoking changes in multiple databases easily, in a few seconds.

A powerful Active Record Model facilitates direct communication with the database layer, doing away with the need to configure for Object Relational Mapping and reflection. Developers can deal directly with objects, even when dealing with XML, relational database data, or JavaScript in the browser. Applying naming conventions when naming database tables, columns, and domain model objects spare the hassles of implementing an O/R Mapper. ROR does the work in the backend.

Seamless integration with open source frameworks and IDEs such as Adobe Flex, QTRuby, RedRails, NetBeands and others, facilitate developing dynamic websites that deploy consistently on all major browsers, desktops, and devices. The application developed in Ruby on Rails can be hosted in the Heroku cloud platform free of cost. In case you require more memory (Dyno), it can be purchased separately.

The heavily structured and organized approach of ROR enables ROR to adapt to changed circumstances quickly, playing into the needs of the fast-changing business environment.

## **Powerful Features**

A key USP of Ruby on Rails is its range of powerful features, and a combination of properties. Unlike many other languages that were adapted for the internet, ROR is built ground-up for internet applications.

One prominent feature especially useful for web developers is built-in support for script.aculo.us, an Ajax library that offers hundreds of flashy Ajax effects. Ajax enables updating part of the website with new information, without having to refresh the entire page. ROR also supports Prototype, and some

other JavaScript and animation frameworks. These libraries and frameworks make the developed app user-friendly, and ensure a dynamic user experience.

ROR offers multiple ways to enhance the behavior of a class dynamically. Apart from the most common method of using the Decorator design pattern, there is also the option to consider the module mixins, `class_eval`, `instance_eval`, and so on. The developer could also define methods on a class even at runtime programmatically. ROR also offers a clever form generation capability, supporting different input types, such as simple text strings, text-areas, date selectors, date time selectors and more.

Ruby as a language is very versatile in handling string manipulation, file and directory creation, and offers superior regular expression support. ROR offers an excellent framework for rapid prototyping and pilot web applications.

ROR's multi-view development capabilities render a website in multiple views or output formats using the same backend code. A single code base may be applied to output HTML for a normal browser, RSS for an RSS reader, or a format suitable for iPhone. This is of significant benefit in today's age of device fragmentation. ROR is horizontally scalable, with more servers added to support more users added easily, and also vertically scalable, for enhanced performance. For instance, Memcache, or speeding up the database-driven websites by caching data and objects in RAM is attainable with just a few lines of code.

ROR comes with inbuilt Unit Testing framework which most of the open source languages lack. Unit Tests and Integration Tests are crucial parts of the development these days as it can offer better quality and maintainability. Another one advantage is that, since ROR has many inbuilt gems (libraries), it can be used as templates for a quick development.

# BEHAVIOR DRIVEN DEVELOPMENT WITH ROR

Ruby on Rails furthers the cause of collaborative development by embracing Behavior Driven Development (BDD). The BDD approach to development focuses more on writing specifications and defining the behavior of the program being developed, rather than writing tests.

ROR incorporates RSpec, a behavior driven framework that encourages developers to think about the behavior of the component that they are developing, and also makes them think about the roles and responsibilities of the other objects with which it interacts. RSpec provides a Story and a Spec framework for writing and executing examples of how a Ruby application should behave at the application level and at the object level. Using these frameworks, developers may express different scenarios, with the logic of the written code tested right away.

## Accelerated Development

Ruby on Rails facilitates the creation of interactive and content rich websites in double quick time. Today's business environment is a living embodiment of the "time is money" concept, and Ruby on Rails is a perfect tool for the situation. ROR eliminates much of the preliminary work required to develop apps, allowing developers to hit the ground running.

The object oriented nature of Ruby on Rails by itself makes programming fast compared to other non-object-oriented languages. The availability of a rich repository of open source pre-written code add-ons means developers can access ready codes for almost all functionality, especially common functions inherent to a database-driven site or app, without the developer having to spend weary hours reinventing the wheel. Most integrations, from social

media to LDAP are also taken care of through these add-ons.

ROR also offers a wide range of components, such as ORM, Web services, JSON, and other built-in APIs. These components also integrate well with external components, to reduce development time and effort significantly. Seamless integration of ROR with database tools such as HeidiSQL further accelerates the development process. Ruby on Rails also comes with a content management system called Refinery, which is free and easy to incorporate. It is very quick and easy to build CMS site using ROR

## Integrated Testing

Ruby does not have compilation. Rather, test driven development, continuous code integration, unit testing, and dependency injection ensure generation of good quality code upfront, and also aids flexibility to change the code.

ROR comes with the required in-built support for performing unit and functional testing. It also has features to track test/code ratios automatically. Besides, ROR offers native support for mock object testing and database fixtures, which streamlines out-of-container testing.

There is a consensus among developers catching bugs upfront, earlier at the development stage, which is far better than trying to rectify it later in the day, immediately prior to release, or even after release. The availability of ready testing catches most defects early in the development cycle when they can be rectified easily.

## IMPROVED PRODUCTIVITY WITH ROR

Developers never had it better. Using Ruby on Rails not only empowers them to do more, but also increases their productivity manifold. Ruby on Rails offers easy to read code. Further, ROR web app project follows standard coding practices and structure, making it easy for a developer to move from one project to another, share code between projects, and for another team to take over legacy projects.

ROR code is self-documenting and readable, sparing developers the productivity-destroying task of conjuring up separate documentation. Last but not the least, ROR and its libraries are all open sources, with no licensing costs involved. ROR not just infuses the project with dynamism, and makes developers more efficient, it does so with far lesser costs.

The availability of several ROR hosting providers spares web entrepreneurs the need for a large capital layout for web infrastructure, deployment, or for training maintenance staff. Several ROR application hosting vendors offer multiple, flexible plans suiting diverse requirements, including pre-installed software and hardware, 24x7 support, easy scaling, and dedicated servers.

While Ruby on Rails offers a wealth of possibilities, it still requires talented and experienced hands to leverage such possibilities and roll out highly intuitive apps. The talent and skill of the developer especially manifest in rolling out user-friendly UI that offers rich interactions. Also, as it is with any active language, the Ruby on Rails platform is continuously evolving. It requires a partner who is into the program, and keeps themselves constantly updated with the latest developments, to roll out the latest and most intuitive apps.

## WHAT'S TRENDING IN RUBY?

The recent RubyConf India 2017 held at Kochi discussed some of the most trending and significant developments in Ruby. Here are the four key areas discussed:

### Mruby

Mruby is the lightweight and easy embeddable interpreter of the Ruby programming language. **According to GitHub**, “Mruby is the lightweight implementation of the Ruby language complying to (part of) the ISO standard. Its syntax is Ruby 1.9 compatible.” Currently around 100 contributors are working on the Mruby project headed by Yukihiro Matsumoto aka Matz (creator of Ruby). mruby can be easily linked and embedded within any application. The Mruby compiler “mrbc” allows you to bring together Ruby programs into compiled byte code. Regional Innovation Creation R&D Programs of the Ministry of Economy, Trade and Industry of Japan is sponsoring Mruby project.

Click here to [download](#) Mruby.

### SciRuby

One of major drawbacks of Ruby for some time was the absence of libraries that could help in implementing the basic tools needed for scientific computing and data visualization. The necessity of a science and visualization package for Ruby resulted in the birth of SciRuby. The first beta release of NMatrix, the SciRuby linear algebra library was shipped successfully in 2016. NMatrix offers a thick as well as thin matrix storage. The tool is being worked on to incorporate ATLAS and LAPACK support. SciRuby experiments are aimed at improving the visualization experience and development of linear algebra software.

## Bots

Artificial Intelligence is one of the outstanding and evolving trends, and automated online assistants is an interesting area within AI. With Ruby, you can build powerful bots. Working with Ruby just helps you create a lightweight application to support your bot. Ruby offers various libraries with which you can build chat bots easily. For example, Chatterbot is a Ruby library which is used for making bots for Twitter. Chatterbot can easily handle most of the basic Twitter API features like tweets, retweets, replies, searches and more. Similarly, you can also use Ruby on Rails to build bots for Facebook messenger, Slack, and more. Ruby on Rails supports the creation of multi-service chat bots with extendable behavior.

## Services-oriented architecture

Microservices architecture or service-oriented design refers to the concept of grouping functionality around business practices/ logical processes. It is mostly about moving from the monolithic style of development. In service-oriented design, each component or functionality of the application is split into iterative aspects so that it easy to design, develop, deploy and test each segment of an application / system. Large organizations like Amazon, eBay etc. use several layers of services to bring together their applications. The advantages offered by Microservices architecture can be easily applied to web applications or systems built in Ruby.

Click here to learn about the [merits of Microservices design](#).

# SUYATI'S RUBY ON RAILS SUCCESS STORIES

## Industry: Publishing

A US-based leader in self-publishing with a huge global presence having around 36 country-specific websites that offer different self-publishing services to its customers. The client wanted to enhance their application meant for training and educating authors by empowering them to become successful self-publishers. The application which was built on ROR framework posed many challenges for the end-users of the client in terms of usability, convenience etc.

The client's existing set up was using an old version of Ruby, which we successfully upgraded to Ruby 1.9.6. This helped the client tackle the challenges posed by extra overheads. We planned the migration after taking into account all the version upgrade challenges that just seamlessly synced with the client's business vision. Apart from the version upgrade, we also supported the client with bug fixing and did some major feature enhancements.

## Industry: Administration, staff management

An Australian based client that offers easy to use, effective cloud based staff management system. Using this system the user can manage create and manage shifts, get real-time scheduling alerts using mobile app, send messages to staff & supervisors- keeping all communication on one platform, identify who has checked in and out of your work locations, and submit timesheets from their smartphones.

The existing system faced scalability issues and limitations with respect to the scheduling hours since jobs need to be allocated based on the time zones of

each geography. Here is a list of solutions we delivered to the client:

- Extension of features of the admin site
- Support validation of time zones
- Helped with bug fixes
- Approval of timesheets and admin approvals- made easy

The extension features on the client's site has made the admin approval processes much easier. With this, they can easily approve timesheets, schedule tasks and so on. The system also allows you to add breaks. Bug fixes on time has helped enhance the site's performance.

## **Industry: Media & Entertainment**

A leading immersive media company based in Australia that wants to empower everyone with the ability to experience a physical place in a digital space using the power of 3D and virtual reality. With an ambition to enhance the user experience of the customers in the Real Estate domain, this media startup improvises its website on a regular basis with feature-rich enhancements.

Customers can use the website of the client to make bookings for creating 3D portals of their physical spaces.

Suyati has successfully developed and implemented the following features using Ruby on Rails as the backend and ReactJS on the front end:

- Calendar booking option that saves considerable time with its user-friendly and intuitive support features.
- Implemented a high-level overview 'Analytics dashboard' page with charts and tables describing the Google Analytics statistics.
- Quick tips feature that allows users to easily make a booking and track status.
- VR cardboard pricing site, which is an ecommerce website that allows agents to sell bulk orders quickly.

## ABOUT SUYATI

Suyati is a fast-growing, digital transformation solutions company that helps you rebuild your customer experience for the digital consumer. We collaborate with businesses to strategize and implement impactful digital initiatives that position our clients ahead of the competition. We are digital-first and we focus on delivering digital transformation solutions that support your various engagement strategies. With our niche and rich expertise in a wide range of technologies and services- CMS, CRM, e-commerce, Cloud, IoT, Data Analytics, and Product Engineering- we help companies leverage their best on web/cloud/mobile platforms.

We enable you to create insights driven customer engagement across all touch points to build a unified marketing approach. Our custom technology solutions have been deployed successfully in companies across the globe, especially in the US, UK, Europe and Australia.

Learn more: [www.suyati.com](http://www.suyati.com)

Get in touch: [services@suyati.com](mailto:services@suyati.com)

March 2017

### References

- [https://www.techgig.com/files/companypage\\_upload/62/Ruby%20on%20Rails%20WP.pdf](https://www.techgig.com/files/companypage_upload/62/Ruby%20on%20Rails%20WP.pdf)
- <https://www.infoq.com/articles/Netter-on-Rails>
- <http://blog.edx.org/ruby-on-rails-one-of-the-most-in-demand-programming-languages-of-2016>
- <http://suyati.com/why-ruby-on-rails-for-building-apps/>
- <http://suyati.com/increase-the-speed-of-your-development-with-ruby-on-rails/>
- <http://suyati.com/ruby-and-rails-the-strengths-and-challenges/>
- <http://www.informit.com/articles/article.aspx?p=1622405>
- <https://www.meetup.com/sfruby/events/230921796/>