This document is outdated.

You can find the latest information here:

https://www.frogans.org/en/main.html

Frogans Technology Overview

This document presents a technical overview of the Frogans technology, describing its principal components and how they work together. It is intended for technical readers seeking to quickly grasp the key principles and scope of the Frogans technology. These technical readers include executives, experts, and reporters, as well as tutorial authors and software developers.

This document is a resource published by the OP3FT, a dedicated, non-profit standards developing organization whose purpose is to hold, promote, protect and ensure the progress of the Frogans technology. The OP3FT acts as the coordinating authority to ensure that all the components of the Frogans technology fit together as a coherent whole. The OP3FT perpetuates the right of the worldwide community to use the Frogans technology in the form of an open standard, available to all, free of charge.

This document covers the general architecture of the Frogans technology as it has been designed. The technical specifications of some of the components have already been adopted and published. The remaining specifications are being drawn up, and some may be published for review as a preliminary draft. Similarly, the reference implementations of some components have been released. The remaining implementations are under development, and some may be released for public testing.

You are free to use this document, in whole or in part, under the terms applying to documents presented on Web sites published by the OP3FT[1].

1 See https://www.frogans.org/en/legal.html

Table of Contents

1 Introducing a New Medium....3
2 Frogans Sites....4
2.1 FSDL Language....4
2.2 Hosting of Frogans Sites....5
3 Frogans Addresses....6
3.1 Pattern and Composition Rules....6
3.2 Frogans Core Registry....6
3.3 Resolution of Frogans Addresses....7
3.4 Links Containing Frogans Addresses....8
4 Frogans Player....10
4.1 Development and Distribution....10
4.2 Updating Frogans Player....11
4.3 Internal Software Architecture....12
5 Complementary Components....14
5.1 Network Communications Using UCSR....14
5.2 Other Complementary Components....15
6 Use of the .frogans TLD....17
7 Security and Privacy....18
8 References....19

1 Introducing a New Medium

The purpose of the Frogans technology is to introduce Frogans, a new medium for publishing content and services on the Internet in the form of Frogans sites. From a technical standpoint, this medium is designed as a new generic software layer running on top of the original Internet infrastructure.

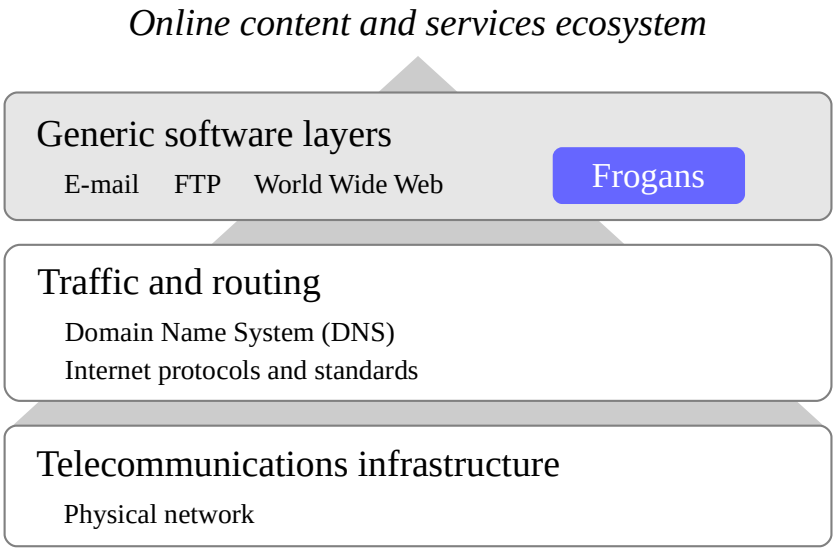

Figure 1. Position of Frogans as a medium on the Internet

Frogans as a medium is intended to be complementary to the World Wide Web, and not to replace it. This is analogous to instant messaging, which was not intended to and did not replace E-mail as a medium for exchanging messages on the Internet. Compared to the World Wide Web, the new medium is intended to suggest publishing content and services which involve visual rather than text-based communication, focused content rather than long pages, and natural interaction rather than complex user interfaces.

The new medium is rooted in a philosophy where typical end users (who have very limited technical knowledge) should no longer be dominated by the technology they are using, and where their interests should always take center stage. This philosophy led to the slogan that drives the OP3FT: "Think users first".

Frogans as a medium renews research and innovation opportunities on the Internet. Besides creating content and services to be delivered via Frogans sites, entrepreneurs can develop a broad range of initiatives adapted to the new medium, such as tutorials, online or offline authoring systems, search engines, and various services related to advertising, payment, and hosting.

This new medium is founded on three key components – Frogans sites, Frogans addresses, and Frogans Player – as well as on several complementary components such as UCSR (Uniform Content Server Request) for network communications.

2 Frogans Sites

A Frogans site is a new kind of online site founded on a new format. Frogans sites can be published by any individual or organization, from anywhere in the world, in any language. Frogans sites are rendered identically on all end-user devices, right down to the pixel level, and regardless of the screen size. Each Frogans site is accessible via its Frogans address.

2.1 FSDL Language

A Frogans site is made up of free-form pages called Frogans slides which are interconnected. Frogans slides are created using an XML-based markup language called the Frogans Slide Description Language (FSDL), defined in the FSDL technical specification [FSDL].

FSDL is not a programming language but a description language. FSDL makes it possible to define all end-user interactivity of a Frogans slide using simple descriptors, without using scripts.

Each Frogans slide is described via a separate FSDL document, which can be either static or dynamic, i.e. generated on the fly. The content of a Frogans slide can also be enriched by auxiliary files referenced in the FSDL document, which are based on standard formats such as PNG, JPEG, and GIF for image files. The total size of a Frogans slide, including its FSDL document and all its auxiliary files, is limited to 256 KB. The FSDL language includes a minimal number of elements and attributes. Frogans site developers do not have to create different FSDL documents for different end-user devices (given that Frogans slides are rendered identically on all devices). Developers can directly hand-code FSDL documents.

Software developers wishing to provide an authoring system or a Content Management System (CMS) to simplify the creation of Frogans sites can use the FSDL software library. This fundamental software library, which can be included in various applications, provides the ability to parse and validate FSDL documents, and render them as Frogans slides. While the FSDL software library is written in C (with some parts in C++), wrappers are provided so that it can be used by applications written in other programming languages such as PHP, Java, Python, C#, VB, Node.js, and Pascal.

The FSDL language also describes the format and use of FSDL-Request documents, which are sent conditionally when the end user browses to a new Frogans slide. FSDL-Request documents make it possible to maintain a session during a visit, and also enable end users to provide input. FSDL-Request documents are generated automatically by Frogans Player.

2.2 Hosting of Frogans Sites

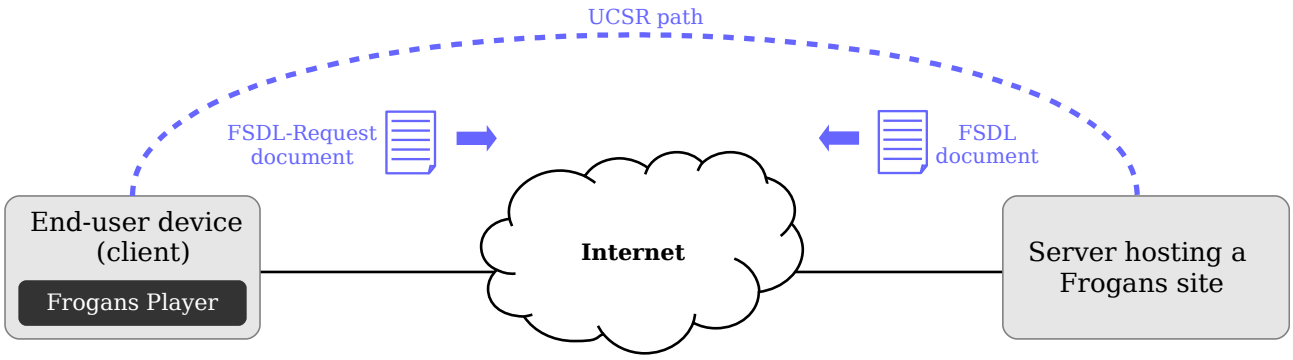

Figure 2. Communications between Frogans Player and a server hosting a Frogans site

Each Frogans site is created and published by an individual or organization called a Frogans site publisher. Each Frogans site is hosted either by the publisher itself or via third-party services.

Each Frogans site is hosted on a server which can be located anywhere in the world, including in a cloud infrastructure. Frogans sites can be hosted on servers that host Web sites, including servers such as Apache, IIS, or NGINX. As a result, Frogans sites with dynamic slides can be developed using the same languages (e.g. PHP, Java, Python, C#, VB, and Node.js) and server-side technologies (e.g. SQL databases and remote Web services) that are used for Web sites.

Each Frogans site is hosted on the server in a single directory called the Frogans site root directory. This directory contains all the FSDL documents and auxiliary files of all the Frogans slides for the Frogans site. In cases where part of the content originates from a third party (such as an advertising network), that content must first be aggregated on the server hosting the Frogans site.

Frogans Player uses the UCSR framework for requesting and receiving data from servers hosting Frogans sites, where each server is associated with a UCSR path (see Section 5.1 Network Communications Using UCSR).

3 Frogans Addresses

A Frogans address is a string of characters used to identify a Frogans site.

3.1 Pattern and Composition Rules

The pattern of Frogans addresses is short and simple, and contains no technical information. This pattern includes two main levels, separated by the asterisk character:

Network-Name*Site-Name

The first level designates the Frogans network, i.e. the group that the Frogans site belongs to. The second level reflects the content of that Frogans site.

A Frogans address may contain international characters used in many languages and writing systems, and may include uppercase, lowercase, and accented characters. It may be written either from left to right or from right to left. The Frogans address pattern is fully defined in the International Frogans Address Pattern (IFAP) technical specification [IFAP].

In order to mitigate risks of confusion for end users between Frogans addresses, composition rules are applied whenever a Frogans address is registered. These rules are defined in the Frogans Address Composition Rules (FACR) technical specification [FACR]. These rules introduce two key concepts:

- linguistic categories: each Frogans address is associated with one linguistic category, which is defined as a group of languages using the same writing system, or as a language using one or more writing systems. Each linguistic category has its own set of employable characters and arrangement rules. There are currently ten linguistic categories: LC-Latin, LC-Chinese, LC-Japanese, LC-Korean, LC-Arabic, LC-Cyrillic, LC-Hebrew, LC-Devanagari, LC-Thai, and LC-Greek.
- convergence forms: a form of a valid network name or site name used to check whether two valid network names or two valid site names are excessively similar, or "convergent".

3.2 Frogans Core Registry

The Frogans Core Registry (FCR) is the central database containing all registered Frogans addresses and Frogans networks worldwide. This database belongs to the OP3FT. The technical and commercial operation of the FCR is carried out by an entity called the FCR Operator under a delegation agreement with the OP3FT.

The FCR is accessible to stakeholders via a multi-stakeholder interface that is defined in the FCR Multi-Stakeholder Interface (FCR-MSI) technical specification [FCR-MSI] . Stakeholders include, among others, the general public, the holders of Frogans addresses and Frogans networks, UDRP-F dispute-resolution service providers, and FCR account administrators.

FCR account administrators are individuals or organizations who have opened an account in the FCR. They act as intermediaries that provide the holders of Frogans addresses and Frogans

networks with registration-management services, including the registration of Frogans addresses and Frogans networks in the FCR.

The FCR-MSI is accessible from a single location (https://fcr.frogans/). It includes two services intended for the general public:

- Whois database query service: provides contact information of holders of Frogans addresses and of Frogans networks, as well as contact information of FCR account administrators
- FCR public data download service: provides a set of downloadable files containing the list of Frogans addresses and and the list of Frogans networks registered in the FCR, as well as the list of FCR account administrators

3.3 Resolution of Frogans Addresses

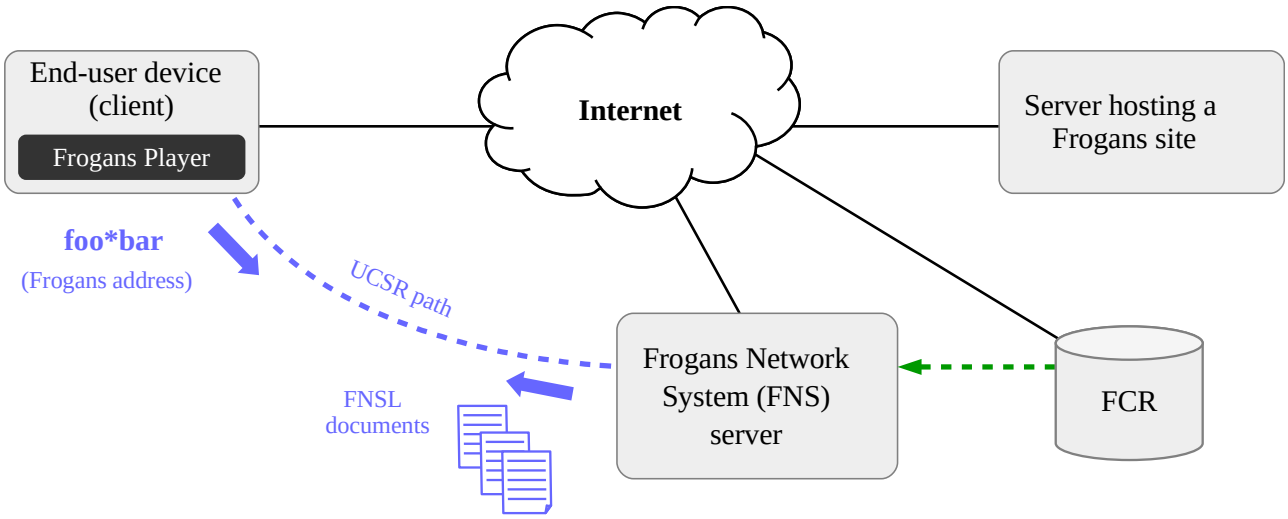

Figure 3. Resolution of a Frogans address via an FNS server

Frogans addresses are resolved every time an end user opens a Frogans site in Frogans Player, e.g. by entering a Frogans address. The FCR Operator proceeds to the resolution of Frogans addresses on the Internet by operating a worldwide infrastructure called the Frogans Network System (FNS) made up of FNS servers. Whenever a Frogans address is created, updated, or deleted in the FCR database, it is updated in the FNS servers.

Frogans Player uses the UCSR framework for requesting and receiving data from FNS servers, where each FNS server is associated with a UCSR path (see Section 5.1 Network Communications Using UCSR).

The Frogans address resolution process is defined in the Frogans Network System Language (FNSL) technical specification [FNSL], which describes the format used for the XML-based documents, called FNSL documents, that Frogans Player retrieves from FNS servers. These FNSL documents can be either an FNS Infrastructure Configuration (FIC) document, a Frogans Network Certificate (FNC) document, or a Frogans Address Lookup (FAL) document. FAL documents contain the settings of a Frogans address defined by the Frogans site publisher. For example:

- the intended audience of the Frogans site (age category, location by country)
- technical information on the Frogans site root directory, in the form of a UCSR path
- technical information on the Frogans site development (FSDL version used, character encoding, home slide file)

FNSL documents are digitally signed using UDSM (Uniform Digital Signature Mechanism – see Section 5.2 Other Complementary Components).

Test Frogans addresses are not resolved via FNS servers but locally via a file called configuration-for-testing.xml. These test Frogans addresses, which start with test*, are used by Frogans site developers to test Frogans sites they are developing.

3.4 Links Containing Frogans Addresses

Generic software layers running on top of the original Internet infrastructure, such as the World Wide Web and E-mail, offer mechanisms that enable end users to easily go from one layer to another, in both directions. For example, end users can easily launch their usual Web browser on a given Web page from a message in their usual E-mail client; in the other direction, end users can easily launch their usual E-mail client with a given E-mail address from a Web page in their usual Web browser. This is commonly achieved using Uniform Resource Identifiers (URIs).

As regards Frogans as a medium, in the outgoing direction, FSDL enables Frogans site publishers to include way-out buttons in their Frogans sites. These buttons enable end users to launch their usual Web browser on a given Web page, or to launch their usual E-mail client with a given E-mail address. This is achieved by associating a URI with each of those way-out buttons (the scheme of the URI can be any of 'http', 'https', or 'mailto').

Conversely, in the incoming direction, Web site publishers have a means to include in their Web pages links that enable end users to launch Frogans Player on a given Frogans site. Likewise, people writing E-mail messages have a means to include in their messages links that enable recipients to launch Frogans Player on a given Frogans site. More generally, any end-user application is able to launch Frogans Player on a given Frogans site.

This is achieved via a specific URI scheme ('leaptofrogans') containing a Frogans address. This URI scheme is described in a Request for Comments (RFC) which has been reviewed, approved, and published as RFC 8589 by the Internet Engineering Task Force (IETF) [LEAP]. This URI scheme has also been registered by the Internet Assigned Numbers Authority (IANA) with the Permanent status. Given that Frogans as a medium does not enable deep linking for Frogans sites, there is no need for additional information in the new URI scheme other than the Frogans address.

Examples of links in a Web page that enable end users to launch Frogans Player on a given Frogans site:

If the Frogans address is Network-Name*Site-Name:

- The link in the Web page is as follows:

```
<a href="leaptofrogans:Network-Name*Site-Name">Link</a>
```

If the Frogans address is 网络名*站名 (which is a Chinese translation of the Frogans address in the previous example)

- The link in the Web page is as follows:

  ```
  <a href="leaptofrogans:%E7%BD%91%E7%BB%9C%E5%90%8D*%E7%AB%99%E5%90%8D">
  Link</a>
  ```

- The link in the Web page using the corresponding IRI syntax (which can be helpful when the Frogans address contains international characters) is as follows:

  ```
  <a href="leaptofrogans:网络名*站名">Link</a>
  ```

4 Frogans Player

Frogans Player is free-of-charge software used by end users to browse Frogans sites.

4.1 Development and Distribution

The Frogans Player software is developed and distributed by the OP3FT.

Frogans Player is available for various devices (smartphone, tablet, desktop or laptop computer, etc.) and operating systems (currently Windows, macOS, Linux, iOS and Android).

Frogans Player is downloaded free of charge. No registration process is involved when downloading or using Frogans Player. End-user privacy is protected under the terms of the OP3FT Privacy Policy[2].

Frogans Player is downloaded from a single official location (https://get.frogans/). In cases where a third-party software downloading platform, also referred to as a store, is the only means for end users with a given device to obtain Frogans Player in a secure environment, end users are asked to follow a link from the official location to that store. For security reasons, distributing Frogans Player from anywhere other than the official location is not allowed.

Publishers wishing to promote their Frogans sites can include the "get.frogans" badge next to links containing their Frogans addresses (see Section 3.4 Links Containing Frogans Addresses) for end users who have not yet downloaded Frogans Player.

Figure 4. "get.frogans" badge

The OP3FT develops Frogans Player for as many devices as possible that are open to third-party applications, doing so without discrimination. In the case where a version of Frogans Player is created by an independent developer, e.g. in order to offer early access to Frogans sites for end users with a specific device that is not yet supported, the source code of this version is reviewed and recompiled by the OP3FT. This version is made available for download from the single official location, along with all the other versions, and is subsequently updated as necessary.

2 See https://www.frogans.org/en/resources/opp/access.html

4.2 Updating Frogans Player

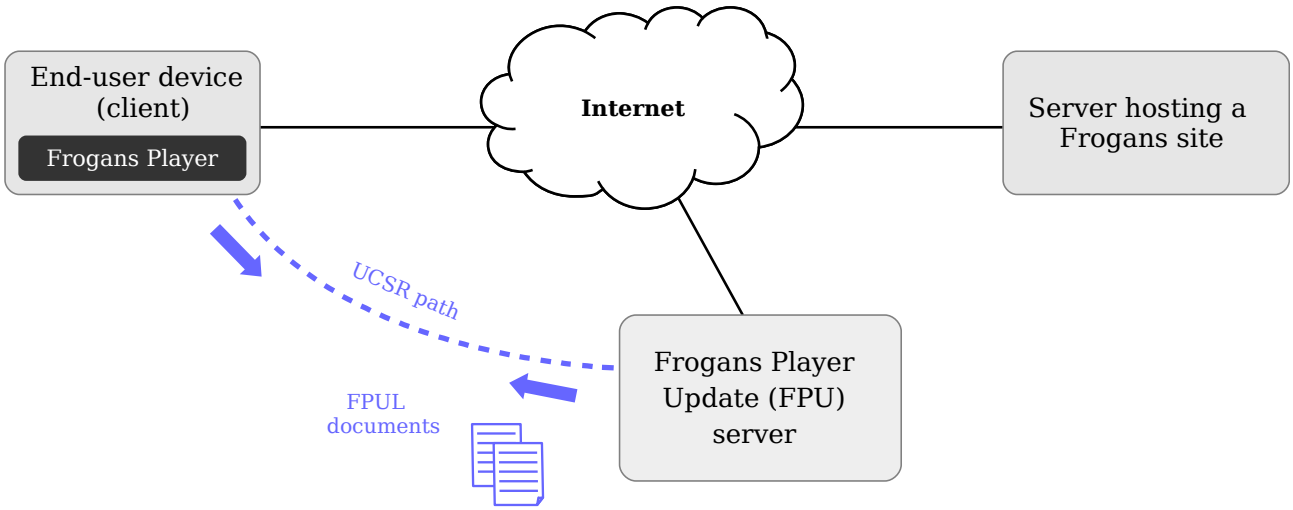

Figure 5. Checking if Frogans Player is up to date via an FPU server

The OP3FT manages servers used for updating Frogans Player, called Frogans Player Update (FPU) servers. FPU servers provide the list of Frogans Player versions and their status. Frogans Player regularly queries the FPU servers to check if it is up-to-date.

Frogans Player uses the UCSR framework for requesting and receiving data from FPU servers, where each FPU server is associated with a UCSR path (see Section 5.1 Network Communications Using UCSR).

The process for updating Frogans Player is defined in the Frogans Player Update Language (FPUL) technical specification [FPUL], which describes the format of the XML-based documents, called FPUL documents, that Frogans Player retrieves from the FPU servers.

FPUL documents are digitally signed using UDSM (see Section 5.2 Other Complementary Components).

4.3 Internal Software Architecture

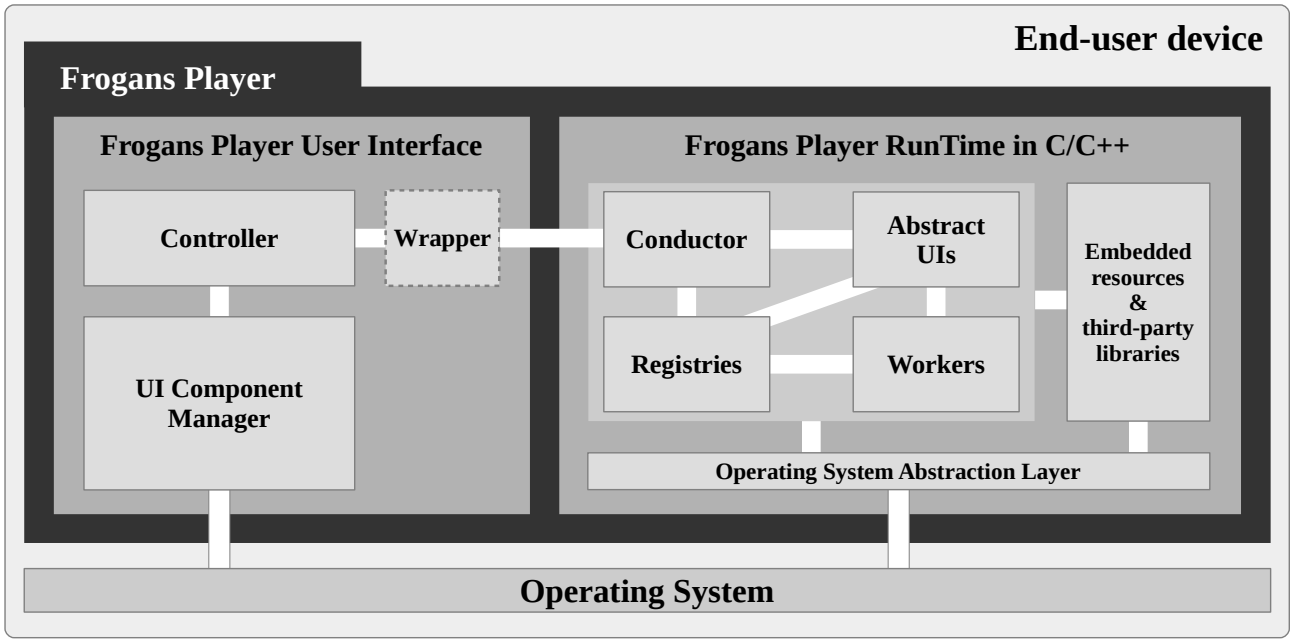

Figure 6. Frogans Player internal software architecture

The internal software architecture of Frogans Player is made up of two building blocks:

- Frogans Player User Interface (FPUI) communicates with the operating system in order to create graphical user interfaces and to handle end-user actions.
- Frogans Player RunTime (FPRT) manages higher-level functions such as making decisions on whether to show, hide or update certain graphical user interfaces, resolving Frogans addresses, and loading and rendering Frogans slides.

FPUI is specific to each platform for which Frogans Player is available and is written in a language suitable for that platform (e.g. Java for Android devices). FPUI comprises the following modules:

- The UI Component Manager manages all components of the graphical user interfaces, such as windows, menus, and entry fields.
- The Controller transmits events from the UI Component Manager to FPRT, and transmits commands from FPRT back to the UI Component Manager.
- A Wrapper is placed between the Controller and FPRT in cases where FPUI is written in a programming language that cannot directly call functions written in C.

FPRT is common to all platforms for which Frogans Player is available. It is implemented as an internal software library which is called by FPUI. It is written in C (with some parts in C++), ensuring both portability and performance. FPRT comprises the following modules:

- The Conductor implements the FPRT API by dispatching events and retrieving commands.

- Each Abstract UI is an abstract representation of a graphical user interface. An Abstract UI manages events and commands concerning it, as well as demands from other Abstract UIs.
- The Workers execute specialized, time-consuming tasks in the background, such as loading and rendering Frogans slides.
- The Registries provide data storage services for the Conductor, Abstract UIs, and Workers, such as managing the list of recently-visited Frogans sites.
- The embedded resources include, for example, the fonts used for rendering text on Frogans slides, and localized text for the graphical user interfaces. The embedded third-party libraries include, for example, mbed TLS used by UCSR to implement the TLS protocol of the UCSR network IP_DNS_TCP_TLS_HTTP (see 5.1 Network Communications Using UCSR).
- The Operating System Abstraction Layer enables FPRT to perform system-level operations on all platforms, including memory allocation, multi-threading, networking, and file access.

FPRT is developed using a dedicated environment called Frogans Player Cross-platform Development Environment (FPXDE). FPXDE is designed to improve developer productivity and source code quality. It includes build chains for automatically compiling and running common source code across different target platforms. FPXDE also includes static program analysis tools to improve code quality and maintainability.

In order to protect end users from unintentionally installing malware, Frogans Player does not include any add-on module system.

5 Complementary Components

The Frogans technology includes several components which are complementary to the key components described above. These components can also be used in contexts outside Frogans technology.

5.1 Network Communications Using UCSR

UCSR (Uniform Content Server Request) is a framework that provides a client application with an abstraction layer for uniformly requesting and receiving data from a content server, while ensuring a predetermined security level.

The UCSR framework is used by Frogans Player for requesting and receiving data from all content servers – servers hosting Frogans sites, FNS servers, and FPU servers. It was designed and developed to make the Frogans technology independent from data-transport protocols.

UCSR does not propose new networking protocols. It utilizes existing protocols widely used on the Internet such as IP, DNS, TCP, TLS, and HTTP.

UCSR introduces two fundamental concepts: UCSR networks and UCSR paths.

- A UCSR network is a combination of protocols enabling communications between a client and a content server. Each UCSR network is assigned a unique identifier which lists all the protocols involved, for example:
  - IP_DNS_TCP_HTTP is the identifier of the UCSR network that uses the IP, DNS, TCP, and HTTP protocols.
  - IP_DNS_TCP_TLS_HTTP is the identifier of the UCSR network that uses the IP, DNS, TCP, TLS, and HTTP protocols.
- A UCSR path defines, for a given UCSR network, the rules to be followed by the client for requesting and receiving data from the content server. A UCSR path is a set of parameters which include both location data and directives.

```
<ucsr-path network='IP_DNS_TCP_HTTP'>
  <location>public</location>
  <domain-name>www.specificdomainname.com</domain-name>
  <port>80</port>
  <directory>/content/helloworld</directory>
</ucsr-path>
```

Figure 7. Example of a UCSR path for the UCSR network 'IP_DNS_TCP_HTTP'

```
                    <ucsr-path network='IP_DNS_TCP_TLS_HTTP'>
                      <location>public</location>
                      <domain-name>www.specificdomainname.com</domain-name>
                      <port>443</port>
                      <tls-version>1.2</tls-version>
                      <certificate-rollover-ongoing>no</certificate-rollover-ongoing>
TLS directives        <current-ciphersuite>TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384</current-ciphersuite>
                      <current-exchange-elliptic-curve>prime256v1</current-exchange-elliptic-curve>
They define           <current-certificate-fingerprint>
the security            35ff28a0006a50ec8d3dc060d88960d2dabc23d0cf225026c0d5df4e3bbd1df3
level for the           2525698c43786a37dfbbbaad9c96ca6f232125b4d042ba4864bb86c8770f07a1
connection to         </current-certificate-fingerprint>
the server.           <current-certificate-type>rsa</current-certificate-type>
                      <current-certificate-rsa-key-size>4096</current-certificate-rsa-key-size>
                      <directory>/content/helloworld</directory>
                    </ucsr-path>
```

Figure 8. Example of a UCSR path for the UCSR network 'IP_DNS_TCP_TLS_HTTP'

The UCSR framework and UCSR networks are defined in technical specifications [UCSR] which are currently being drawn up by the OP3FT. A preliminary version of the UCSR fundamental software library has been implemented.

5.2 Other Complementary Components

The Frogans technology also includes the following complementary components:

- **UPIL** (Uniform Programming Interface Language) is an XML-based markup language for describing the API of a software library, written in C, which is intended to be used by software written in other programming languages.

  The UPIL language is used to describe the APIs of all the fundamental software libraries of the Frogans technology, including the FSDL software library.

  UPIL also defines methods for generating wrappers for each programming language (currently PHP, Java, Python, C#, VB, Node.js, Ruby, and Pascal).

  The UPIL language and methods for generating wrappers are defined in technical specifications [UPIL] which are currently being drawn up by the OP3FT. A preliminary version of the UPIL fundamental software library has been implemented.

- **UDSM** (Uniform Digital Signature Mechanism) is a uniform mechanism for including and verifying digital signatures in an XML-based markup language.

  The UDSM mechanism is used in both the FNSL and FPUL languages. All FNSL and FPUL documents retrieved by Frogans Player are digitally signed by the FCR Operator or the OP3FT, respectively.

  UDSM protects a given element of the XML-based markup language. The digital signature is embedded directly in the document using specific XML elements.

  UDSM does not propose new cryptography technologies. It utilizes existing technologies such as public-key cryptography and elliptic curves.

The UDSM mechanism is defined in a technical specification [UDSM] which is currently being drawn up by the OP3FT. A preliminary version of the UDSM fundamental software library is currently being implemented.

- **UXDV** (Uniform XML Document Validation) is a framework for generating the validator of an XML-based markup language.

  The UXDV framework is used to generate the validators of all the XML-based markup languages of the Frogans technology, such as FSDL, FNSL, and FPUL. These validators are included in the corresponding fundamental software libraries.

  UXDV introduces principles for designing an XML-based markup language and its validation rules. These rules are described using a new kind of document with a specific syntax.

  UXDV is defined in a technical specification [UXDV] which is currently being drawn up by the OP3FT. A preliminary version of the UXDV fundamental software library is currently being implemented.

- **ULPL** (Uniform Legal Presentation Language) is an XML-based markup language for presenting legal information.

  The ULPL language is used in the Frogans technology to present various types of legal information for end users provided by the publisher of a Frogans site (e.g. legal notice, terms of use, privacy policy).

  ULPL is agnostic concerning the content of the legal information. It merely provides the means for visually organizing the information into sections and clauses, and for applying basic formatting options such as bold and italic text or bulleted and numbered lists.

  ULPL is defined in a technical specification [ULPL] which is currently being drawn up by the OP3FT. A preliminary version of the ULPL fundamental software library is currently being implemented.

6 Use of the .frogans TLD

The .frogans TLD (Top Level Domain) was delegated to the OP3FT by ICANN, the Internet Corporation for Assigned Names and Numbers. The .frogans TLD is intended to ensure the security, stability, and reliability of Frogans as a medium for the benefit of all Internet users.

The .frogans TLD domain names are not used to name Frogans sites. They are held solely by the OP3FT and are only used to address the computers dedicated to the functioning and administration of Frogans as a medium on the Internet.

The key benefit in using a TLD instead of a second-level domain is to gain maximum control over the registration process and resolution of these critical domain names.

The use of the .frogans TLD is inspired by the use of the .net gTLD, as originally intended and specified by Jon Postel in RFC 1591 in 1994: "*NET - This domain is intended to hold only the computers of network providers, that is the NIC and NOC computers, the administrative computers, and the network node computers. The customers of the network provider would have domain names of their own (not in the NET TLD).*"

7 Security and Privacy

During the design and development of the Frogans technology, security considerations have always been given the highest priority. Combined with the efforts to achieve simplicity, these considerations led to an end-to-end security model which directly eliminates a whole series of well-known threats.

This end-to-end security model has the following key technical properties:

- Frogans addresses are secure by design.
- Connections to Frogans site servers are operated in a purely deterministic manner. If the predetermined security level is not reached, then the connection fails automatically.
- The nature of the files conveying the content of Frogans sites is innocuous.
- Protective measures are applied systematically when treating files received from Frogans site servers.
- Frogans Player is protected against malware.

Furthermore, privacy has been taken into account in all the design decisions related to the Frogans technology in order to put end users on an equal footing with Frogans site publishers. There are no cookies with Frogans sites.

Frogans as a medium for publishing content and services on the Internet protects the privacy of end users at multiple levels:

- It isolates end users from third parties.
- It makes Frogans site publishers accountable to end users.
- It prevents the leaking of information.
- It precludes invasive tracking.
- It sandboxes information between Frogans site publishers.

For details, as well as an extensive discussion on how Frogans as a medium is perceived by end users as being safe and protecting privacy, see Section 1.4 "Frogans Sites and Web Sites" of the FSDL technical specification [FSDL].

8 References

[FACR] OP3FT, "Frogans Address Composition Rules", Version 1.0, ISBN 978-2-37313-001-0, December 2014, <https://www.frogans.org/en/resources/facr/access.html>

[FCR-MSI] OP3FT, "FCR Multi-Stakeholder Interface", Version 1.0, Work in progress, <https://fcr.frogans/en/resources/fcr-msi/access.html>

[FPUL] OP3FT, "Frogans Player Update Language", Version 1.0, Work in progress, <https://www.frogans.org/en/resources/fpul/access.html>

[FSDL] OP3FT, "Frogans Slide Description Language", Version 3.0, Work in progress, <https://www.frogans.org/en/resources/fsdl/access.html>

[FNSL] OP3FT, "Frogans Network System Language", Version 4.0, Work in progress, <https://www.frogans.org/en/resources/fnsl/access.html>

[IFAP] OP3FT, "International Frogans Address Pattern", Version 1.1, ISBN 978-2-37313-000-3, November 2014, <https://www.frogans.org/en/resources/ifap/access.html>

[LEAP] Tamas, A. et al, "The 'leaptofrogans' URI Scheme", RFC 8589, May 2019, <https://www.rfc-editor.org/info/rfc8589>

[UCSR] OP3FT, "Uniform Content Server Request", Series of technical specifications, Version 1.0, Work in progress. <https://www.frogans.org/en/resources/ucsr/access.html>

[UDSM] OP3FT, "Uniform Document Signature Mechanism", Version 1.0, Work in progress, <https://www.frogans.org/en/resources/udsm/access.html>

[ULPL] OP3FT, "Uniform Legal Presentation Language", Version 1.0, Work in progress, <https://www.frogans.org/en/resources/ulpl/access.html>

[UPIL] OP3FT, "Uniform Programming Interface Language", Series of technical specifications, Version 1.0, Work in progress, <https://www.frogans.org/en/resources/upil/access.html>

[UXDV] OP3FT, "Uniform XML Document Validation", Version 1.0, Work in progress, <https://www.frogans.org/en/resources/uxdv/access.html>