prpl

a regular newsletter with updates from prpl Foundation and its members
Please send news and updates to shelly.coen@prplfoundation.org

A word from Leonard Dauphinee, President of prpl Foundation

The first part of 2022 was eventful for the prpl Foundation. We collectively delivered prplOS 1.5 which runs on multiple hardware platforms and a first version of the LCM agent which should enable the development of new high-level API-based services. We launched the prplOS 2022 and prplMesh 2022 acceleration projects. We also welcomed new operators and industry players (9 new members since the beginning of 2022). The Board of Directors was completed with the election of new representatives for the Silver and Gold members.

The second half of the year should be just as rich in terms of deliveries but also with the return of the prpl summit in person next October in Amsterdam. I hope to see many of you there to share our achievements but most of all to discuss the future of prpl. It's time to raise your hand if you want to sponsor this event or present your products running on prplOS. You will find more information in this newsletter.

In the meantime, I wish you a very good summer break, hoping it will be restful and regenerating. And see you in Amsterdam!

Please Note:

There will be some interruption to the collaboration tool access in August. We will be migrating Jira and Confluence from server to the cloud instance. This migration is planned for August 21st and access could be limited for up to 72 hours while this is taking place. If you have any questions please feel free to reach out to shelly.coen@prplfoundation.org

prpl Foundation Board of Directors:

Leonard Dauphinee, MaxLinear, President	Ian Wheelock, Commscope
Pedro Santos, DTAG	Dave Barr, MaxLinear
Randy Zimler, Verizon	Arnaud Bensaid, SoftAtHome
Wojtek Makowski, Orange	Brandon Kern, Dish
Endika Miragaya, Vodafone	John Blackford, Commscope, Community Director
Paul Keator, Dish Networks	Thomas Staneker, Kaon, Treasurer
Wayne Daniel, Qualcomm	

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Direct from the Board

prpl's membership has been growing steadily and we're seeing this reflected in the makeup of our board. The number of silver and gold directors is directly related to the number of members in the foundation and this year was the first year that prpl has elected two silver directors and two gold directors. We had the election process this past month and we are delighted to welcome our new board members. Ian Wheelock, Commscope is our newest silver director. He joins Wayne Daniel, Qualcomm who was also elected as silver director earlier this year. Paul Keator, Dish has won one of the two gold director seats, and Endika Miragaya, Vodafone has retained his seat on the prpl Foundation board of directors. We're very proud of the work that our active and engaged board is doing, and we're looking forward to continuing this growth and development!

The Board is very thankful for all the collaborative efforts and the on-going contributions from the prpl community. There has been significant progress in the Working Group (WG) efforts and those efforts are being recognized across the telecommunications industry. Your prpl Board continues to socialize the value of open-source (open-source) software system development, industry adoption, the recognition of shorter time to market, lower costs, a common ecosystem and the benefits of software portability across CPE consisting of various hardware technologies. From where we are in 2022 the future of open-source adoption looks very bright, but the Board is looking for your help to bolster additional collaboration and contributions for this year and beyond.

The Various WGs under the umbrella of the prpl Board and the Product / Technical Steering Committees are contributing to development of the various prplWare deliverables. The prpl Foundation could not be successful without those contributions.
The contributions come in the form of product / technical requirements from member company representatives, in-kind offerings of industry sponsored software components and sponsorship funding made available through member companies. The Board recognizes that all the contributions made to the prpl Foundation have brought the organization to the level of success that has already been achieved. At the same time the Board is looking towards the future of open-source and the continuing need for the prpl community to grow in membership and broaden contributions by its member company representatives and the financial demands to further enhance the prpl open-source ecosystem.

As we finish out 2022 and look forward to 2023, please continue with WG engagements, contribute as much time as possible to advance the capabilities of the prpWare open-source ecosystem, consider how to increase your prpl Foundation membership level and look for ways to budget financial sponsorships in the present time and for years to follow."

Sincerely,
Your prpl Foundation BoD

News from the Working Groups

Certification Working Group

Continuing this series, we would like to provide you more insight on what our working groups are doing. In this volume, we hear from the newly formed Certification Working Group.

*We met **Timothy Winters** from QACafe, **Chair of the Certification Working Group**, and asked him a few questions about this working group.*

Why does prpl Foundation need Certification?

Fragmentation in the CPE industry has made it less efficient. Supporting tens or even hundreds of middleware variants is difficult for SoC vendors. Increasing their costs of support and bug fixing, impacts the quality of their software deliverables and slows down the pace of updates to things such as Linux kernel. This has a negative impact on all CPE projects including longer Time-To-Market, huge testing costs, important back-porting costs and infrequent SW upgrades. The fragmentation in the area of low-level software interfaces increases the costs of ODM/OEMs and system integrators working with several SoC platforms.

Therefore, the prpl Foundation is working to address those issues. The goal is to reduce the number of middleware platforms on the market. The middleware platform must have a common core well delimited from well-defined customization means based on configuration, plug-ins and apps. Such a middleware design makes any upstream contributions to the common core easy because it doesn't mix improvements/extensions with customizations. This, in turn, decreases fragmentation and improves mutualization.

The middleware platform and its App Environment must be standardized and their versioning well managed. It must bring the marginal cost of SW innovation and allow for reuse across many platforms.

The prpl Foundation has created several open source projects such as prplOS, LCM, HL-API, LL-API, and prplMesh to address these CPE industry issues. Overall, open source projects help resolve many of the issues above, but it doesn't always prevent fragmentation. It can be extremely easy to fork a project creating many different variations of the same software. In these cases it can be difficult for operators to understand what is true original open source and what has been modified. These software standardization efforts already undertaken by the prpl Foundation won't be seamlessly adopted because of vested interests, bad habits and natural inertia of an industry. Therefore, the prpl Foundation decided to define and develop its strategy of certification so that operators, SoC Vendors, OEM/ODM, and SW-based solutions can collaborate and reduce fragmentation allowing the industry to evolve at faster pace.

What are the main objectives of the Certification Working Group?

Develop and document corresponding Test Procedures leveraging CDRouter and other open-source tools, with the intent of enabling Self-Testing as a key element of the Certification programs.

What is the structure of the certification process? (features, performance, APIs ...)

The structure of the certification process is currently being defined in the CERT TWG.   The CERT TWG is planning on defining a Certification Program document for defining processes for the certification to participate in the program, certifications requirements, and lifecycles of certifications.

What is the current status of the group?

The CERT TWG is planning on meeting once a week to create both a test program document and starting to create an individual test specification documents for different components. The Roadmap is starting with prplOS as it has the most test content today.   The group will move onto LL-API, HL-API, and prplMesh afterwards.

How can prpl members contribute to this Working Group? Why should more people be involved?

prpl members can contribute by attending the meetings as these requirements are being defined to give feedback during the process.   For the certification to be successful we need representatives from different areas of expertise or need. For example we want operators to participate to discuss mandatory requirements with the group.   We want feedback from SoC vendors on testing requirements for LL-API.   Having all of these members working together when certification items are defined will allow the process to launch seamlessly.

We're looking forward to seeing you in the working group meetings on alternating Mondays at 9am Pacific/6pm CET.

Find more information or subscribe to the calendar here - https://confluence.prplfoundation.org/display/CERT/Cert+TWG

BREAKING NEWS!

prpl Summit 2022 is coming back

We are delighted to invite you to the **prpl Summit 2022** that will be held in **Amsterdam** on **October 20th 2022**. Save the date, book your flight, it is back and it will be great!

2022 prpl Summit will be a full day one track event

Our agenda is taking shape and sessions will include:
- prpl Ambitions for the years to come
- Keynotes from key Operators and industry stakeholders
- Several panels on prpl impacts on our industry
- prpl roadmap
- And more to come!

Sponsoring

If your company wants to showcase its services and applications or demonstrate its thought leadership, you are invited to sponsor the prpl Summit.

Our sponsorship levels can be seen in the below table. We are offering three levels of sponsorship - Premium, Advanced and Standard. There are a limited number of these packages available so we encourage you to act fast!

	Premium	Advanced	Standard
	$10000	$6000	$2500
Banners (on-site visibility)	✓	✓	✓
Communications (Newsletter, LinkedIn)	✓	✓	✓
Demo Desk	✓	✓	
Logo on Lanyard*	✓		
Speaking Slot	✓		

*This will only apply to sponsorships agreed before the cut off date to order these items

Contact: prplsummit@prplfoundation.org

Events and Media Partnerships

Connected Britain
September 20-21, 2022

Over the past 8 years, #ConnectedBritain has solidified itself as the UK's most important connectivity event, bringing together the leaders shaping Britain's digital future. The event remains the best place to understand the technology, regulation, and investment environment for the rollout of next generation networks in the UK.

Connected Britain 2022 will continue to evolve and explore how next generation broadband technologies, especially fibre and 5G, are enabling exciting new opportunities across the UK. The conference will also have a renewed focus on the customer, whether that's business, communities, or individuals. Join us on September 20th & 21st for this unmissable event. To find out more go to totaltele.com/connectedbritain

Wi-Fi Now, Sweden
September 26-28, 2022

Wi-Fi Now have a goal to make high-quality, high-performance Wi-Fi available everywhere, for everyone. Through yearly Wi-Fi industry events in the USA, Europe, and Asia, they showcase the most promising companies and inspiring case studies that are driving the industry forward. With a community of more than 20,000 actively engaged Wi-Fi professionals from every segment of the industry, Wi-Fi Now collaborate with individuals, carriers, service providers, tech vendors, and regulators to promote and support all things Wi-Fi. On September 26-28 the Wi-Fi World Congress will be visiting Stockholm, Sweden; one of the world's most beautiful and dynamic cities!

Digital Transformation Week, North America
October 5-6, 2022

The Digital Transformation Week, North America is an event and conference consisting of top-level content and thought leadership discussions exploring the digital transformation ecosystem. The online conference is perfect for those technology professionals making investment and strategy decisions, or building and executing pioneering projects within their organisation.

The event will consist of live and on-demand from over 40 speakers sharing their unparalleled industry knowledge and real-life experiences in the forms of solo presentations, expert panel discussions and in-depth fireside chats. Register Here!

Edge Computing Expo, North America
October 5-6, 2022

An in-person event and conference consisting of **top-level content** and thought leadership discussions exploring the edge computing ecosystem**.**
Edge Computing Expo North America will provide insight and strategies for technology decision makers seeking to explore and evaluate thought-leadership topics and valuable strategies to drive businesses forward. The online conference is perfect for those technology professionals **making investment and strategy decisions** or building and executing pioneering projects within their organisation.
The event will consist of **live and on-demand sessions from speakers** sharing their unparalleled industry knowledge and real-life experiences in the forms of solo presentations, expert panel discussions and in-depth fireside chats.
Register Here!

Digital Transformation Week Global
December 20-21, 2022

The Digital Transformation Week Global is an event and conference consisting of top-level content and thought leadership discussions exploring the digital transformation ecosystem. The online conference is perfect for those technology professionals making investment and strategy decisions, or building and executing pioneering projects within their organisation.
The event will consist of live and on-demand from over 40 speakers sharing their unparalleled industry knowledge and real-life experiences in the forms of solo presentations, expert panel discussions and in-depth fireside chats.
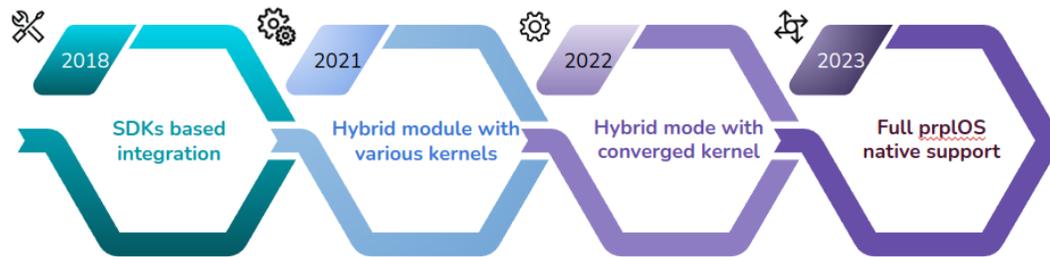Register Here!

News from the industry

Converging to a single kernel version

Historically every SoC vendor creates their own SDK by:
- cloning the platform they use as a base
- cloning the Linux kernel for which they are developing the drivers for their SoC

Once cloned, the software platform (say OpenWRT) is not upgraded for years and does not follow the regular CD/CI process, which the platform developers do. They stay with this code base for many years and only apply security patches and upgrades. This way they sentence their architecture to a dead end solution which cannot grow, evolve and cannot be optimized. This approach also does not address all vulnerabilities and security issues. Typical example is the evolution of encryption algorithms and obsolescence of some of the old ones, which are now easily cracked with modern powerful hardware. Same goes for the Linux kernel with the same drawbacks.

For prpl Foundation this approach seems very limited and straying away from the philosophy of constantly evolving and keeping up with the new trends in the embedded carrier grade architecture. That is why we have developed a strategy to work together with SoC vendors for a better platform and kernel evolution alignment.

Such alignment includes several stages, which are necessary to transition towards all of us working together and change and optimize our way of collaborating between the different sectors in the industry:
- Using the same platform for the SoC vendors' SDKs - this condition is already in place, considering that most of the SoC vendors' SDKs are based on OpenWRT.
- Using the same version of the platform by all vendors' SDKs – this is a more difficult task, since as mentioned all of them clone the OpenWRT platform one way or another.
- Using the same Linux kernel version in the same time period – this is the most difficult one. As mentioned already, SoC vendors are cloning the Linux kernel.

Considering the above conditions, prpl Foundation has created a strategy, which will encourage the SoC vendors to collaborate and synchronize their platforms and the kernel versions in order to support the open source development in prpl Foundation and ensure full compliance with the standards in the Linux kernel.

This strategy calls for platform and Linux kernel convergence. Using prplOS as a base for platform convergence makes perfect sense – it is OpenWRT based, works on the majority of OpenWRT-based retail devices and allows building up the operator grade stack, necessary for stable and secure operator grade base operating systems and integration with newest carrier grade chipsets.

The Linux kernel convergence however will require several stages:
1. Monolithic SDK based integration with limited diversity of SW platforms and lack of new architecture and feature support, inability to implement architecture and feature advancements. This is the initial stage - BSP layer has to be integrated in a prplOS based operator platform using the corresponding SoC vendor SDK, due to the lack of kernel version synchronization and the way drivers are integrated in the build system.
2. Separating HW from SW results in a hybrid model, still depending on the corresponding SoC SDK with prplOS overlay, which needs a lot of integration efforts and compliance with the new trends, but it is necessary in order to converge the application level before we are ready to move on to the next stage.
3. **Converging to a single kernel version leads to easier deployment using a variety of chipsets and satisfies a diversity of features and solutions, but still requires time for integration and customization of the platforms. Prpl Foundation is targeting this stage for the next prplOS release, which will guide the SoC vendors towards a single Linux kernel version used in their SDKs.**
4. Complete native feeds support with no SDK dependencies and fully compliant with the standard Linux kernel and OpenWRT build processes. Allows fastest time to market and rich diversity of silicon and features. This stage requires extracting the OpenWRT build system compliant feeds for a single chipset family and corresponding target reference platforms and using prplOS as a proving and development platform by the SoC vendors. It will allow the SoC vendors to:
   - Change their approach towards working with prpl Foundation - delivering open source code feeds for a single chipset family requires way less resources and time than the support for all existing chipsets with all drivers validations.
   - Benefit from the existing test cycles in prplOS/prplMesh and offload their CD/CI onto the prpl workgrous and prpl Foundation CD/CI process.
   - Testing their deliverables in many solutions by any operators at the same time and shortening the time for a release of a driver set.

Overall this methodology allows the SoC vendors to transition to an evolving platform and kernel development and assuring the use of the latest architecture and security best practices. It also allows best utilizing the hardware capabilities and allows for rapid innovations and a wider range of features for the future chipsets.

Submit your Updates:

This Newsletter is a regular feature in prpl Foundation's communications. We encourage our members to take full advantage of this opportunity to reach prpl's membership with news of events and releases.

To have your updates included, please reach out to *shelly.coen@prplfoundation.org*. The next issue will be circulated by mid-October 2022. To include your updates please submit them by Friday, October 7th 2022.

We look forward to hearing from you and sharing updates about our members' releases, events and more!

Our Members:

Accenture	Casa Systems	Kaon Broadband	Smith Micro Software
Actiontec	Claro	MaxLinear	SoftAtHome
ADB	CommScope	McAfee	Synamedia
Airoha	Compal BN	MediaTek	TEA-Networks
Airties	Consult.Red	Minim	Technicolor Connected Home
Allot	Cortina Access	Nokia	Telecom Argentina
Amlogic	Deutsche Telekom	NXP	Telia Sverige
Arcadyan	Devalore	ON Semiconductor	TIM
AT&T	Dish Network	Orange	Verizon
AWS Amazon Web Services	embedUR	QA Cafe	Vodafone
BT	GlobalLogic Inc.	Qualcomm	WNC Wistron NeWeb Corporation
CableLabs	Hitron	Sagemcom Broadband	WithSecure
Calix	Incognito	SAM Seamless Network	Xunison
CapGemini	IOPSYS	Sercomm	