





Intelligent Personal Assistant Architecture: *Architecture and Potential for Standardization Version 1.2*

A new publication of the World Wide Web Consortium
Voice Interaction Community Group

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The W3C Voice Interaction Community Group

A Community Group of the World Wide Web Consortium promoting standards for conversational interfaces

Home page:

- <https://www.w3.org/community/voiceinteraction/>

There are many areas where standards are valuable, but the current focus is on **interoperability** of personal assistants

What do we mean by interoperability?

Intelligent Personal Assistants (IPA's) working together

- Possibly developed by different organizations
- Not tied to a specific platform
- Exchanging information as appropriate to help users accomplish their goals



What we have now

- Silos of thousands of IPA's that only work with one platform
- Enterprises have to develop multiple versions of their IPA's
- Users need multiple platforms to access all the IPA's they need



What we could have

- IPA's on any platform cooperating to address users' goals
- The voice world could be much more like the web, with as many IPA's as websites

The barrier is interoperability



Obstacles to Standards

- Vendors prefer users and businesses to be locked into their platforms
 - But: This only benefits vendors
- Standards take time to develop and require agreement
 - But: Standards can be developed incrementally
- Vendor want the freedom to experiment and innovate
 - But: Most innovations happen within the component technologies, not the interfaces, where standards are most important



Benefits of interoperability standards

- Developers:
 - Can code to a single set of standards that work across all platforms
- Users:
 - Don't need to worry about which platform hosts which assistants
 - Can accomplish complex tasks that require the cooperation of multiple assistants
- Enterprises:
 - Can develop and maintain one enterprise assistant that works on all platforms



Introducing: Intelligent Personal Assistant Architecture Architecture and Potential for Standardization Version 1.2

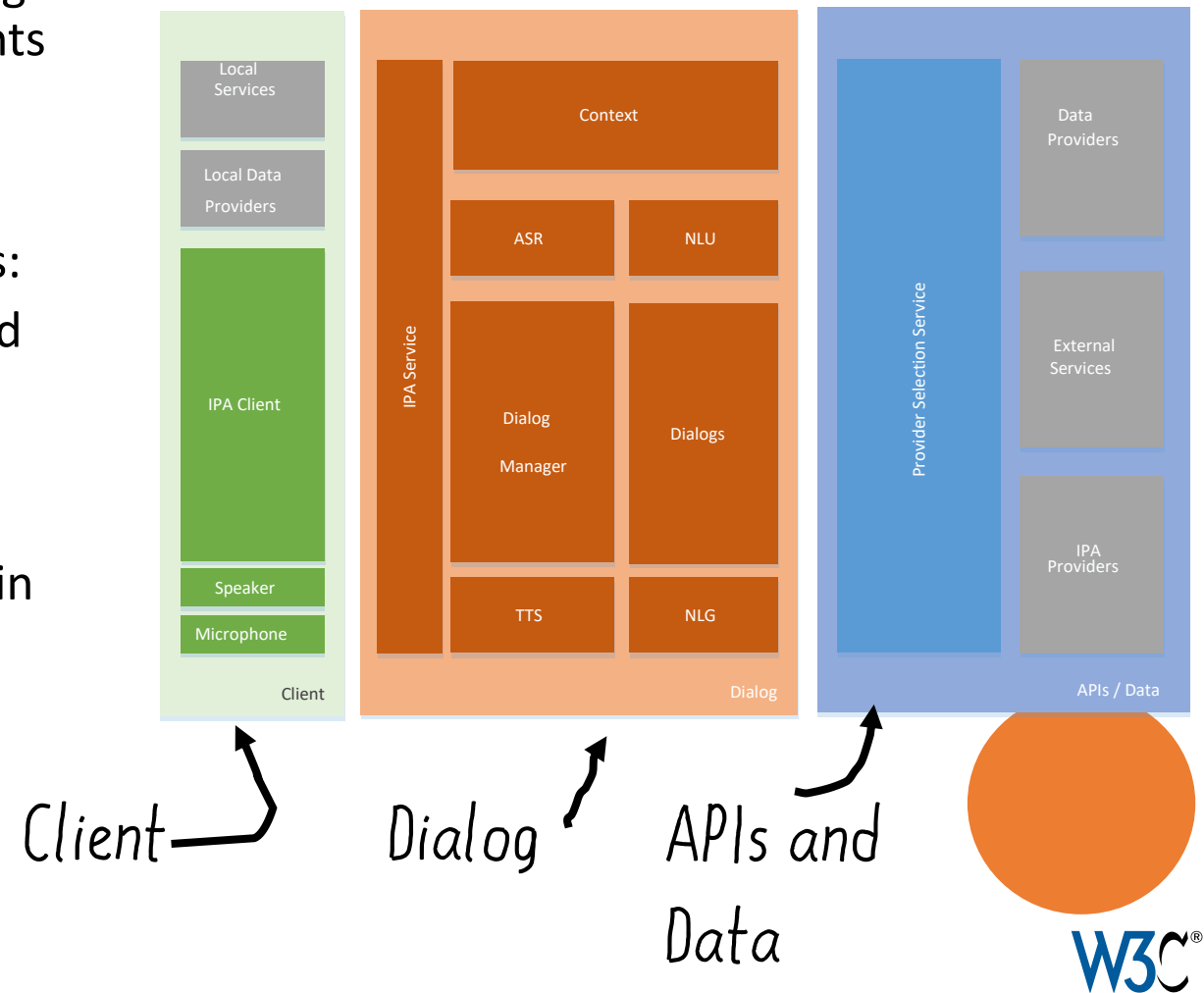
- The purpose of the document is to define components for an interoperable personal assistant ecosystem



- <https://w3c.github.io/voiceinteraction/voice%20interaction%20drafts/paArchitecture-1-2.htm>

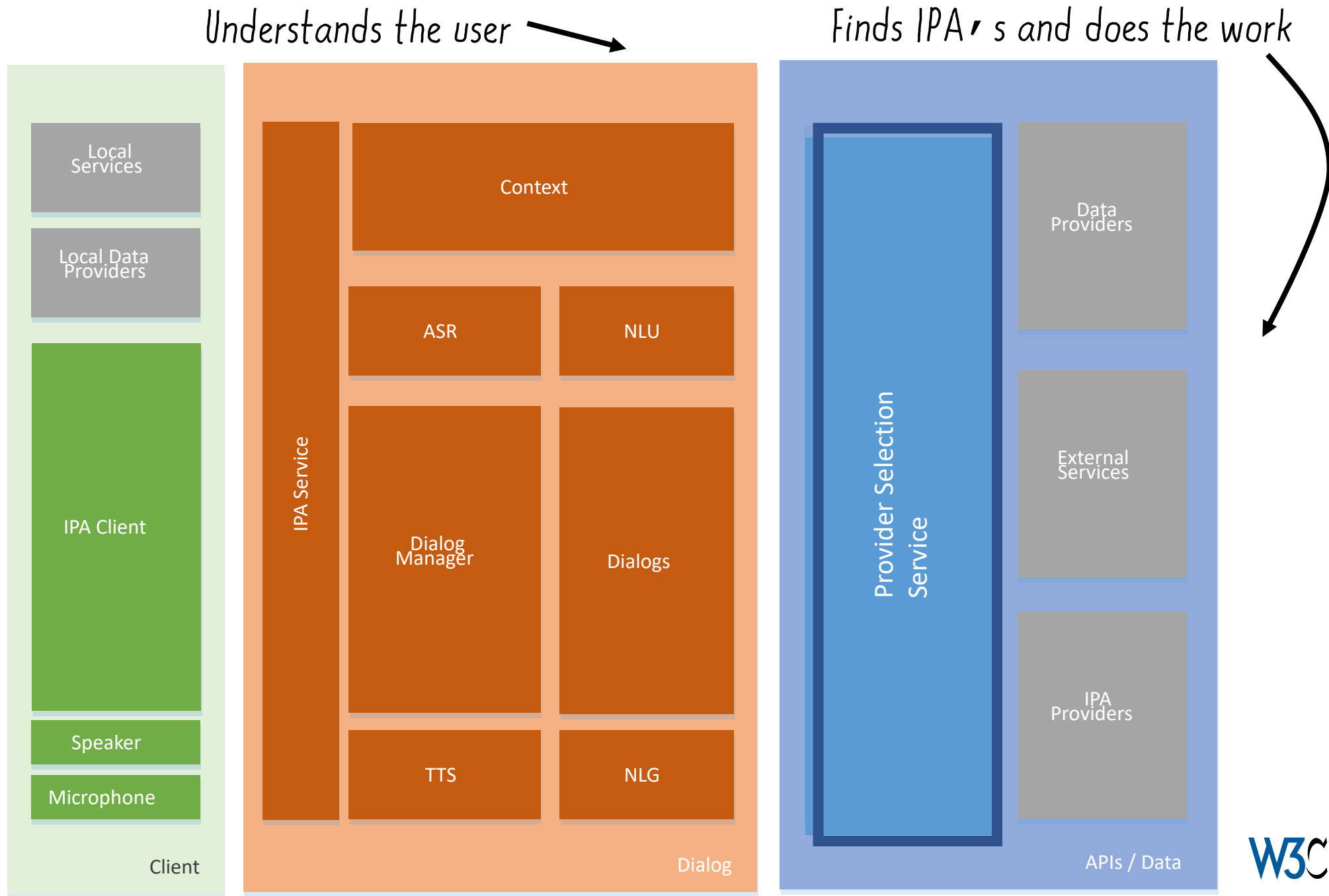
The details

- Three components, the user-facing client, the dialog components, and the back-end data/api components
- Similar to the components of a traditional conversational AI system
- For interoperability, we have to solve two problems:
 - Discovery of IPA's that can address users' stated goals
 - The Provider Selection Service – provides access to all known IPA's
 - Communication among IPA's (to be addressed in the upcoming interfaces document)
 - Invoke a discovered IPA
 - Provide the discovered IPA with the information and context it needs



Architecture overview

Speaks and listens to the user





Get involved!

Members of the conversational AI community can get involved by:

- Reviewing the architecture draft and sending comments
- Joining the group (<https://www.w3.org/community/voiceinteraction/>)
 - You don't have to belong to the W3C!
- Contributing to the group's publications
 - The next focus of the group will be on standard interfaces among components
- Implementing proposals