



# SoLiD - 万维网之父的去中心化理想

谢扬 - SoLiD 中文网



# 万维网之父

Tim Berners-Lee  
2016 年图灵奖得主



万维网联盟 (W3C) 创建人  
MIT 计算机及智能实验室主席  
英王功绩勋章获得者  
不列颠帝国勋章获得者  
美国国家科学院外籍院士  
BBC 最伟大的 100 名英国人  
南安普顿大学与麻省理工学院教授  
第一个网页浏览器和第一个网页服务器的编写人  
时代杂志20世纪最重要的100个人物

...



# 万维网联盟

- Web 技术标准组织（Recommendations）
- HTML 、 CSS、 XML、 WWW
- 语义网、本体（Ontology） 、 RDF、 OWL、 Web Services 等

# SoLiD

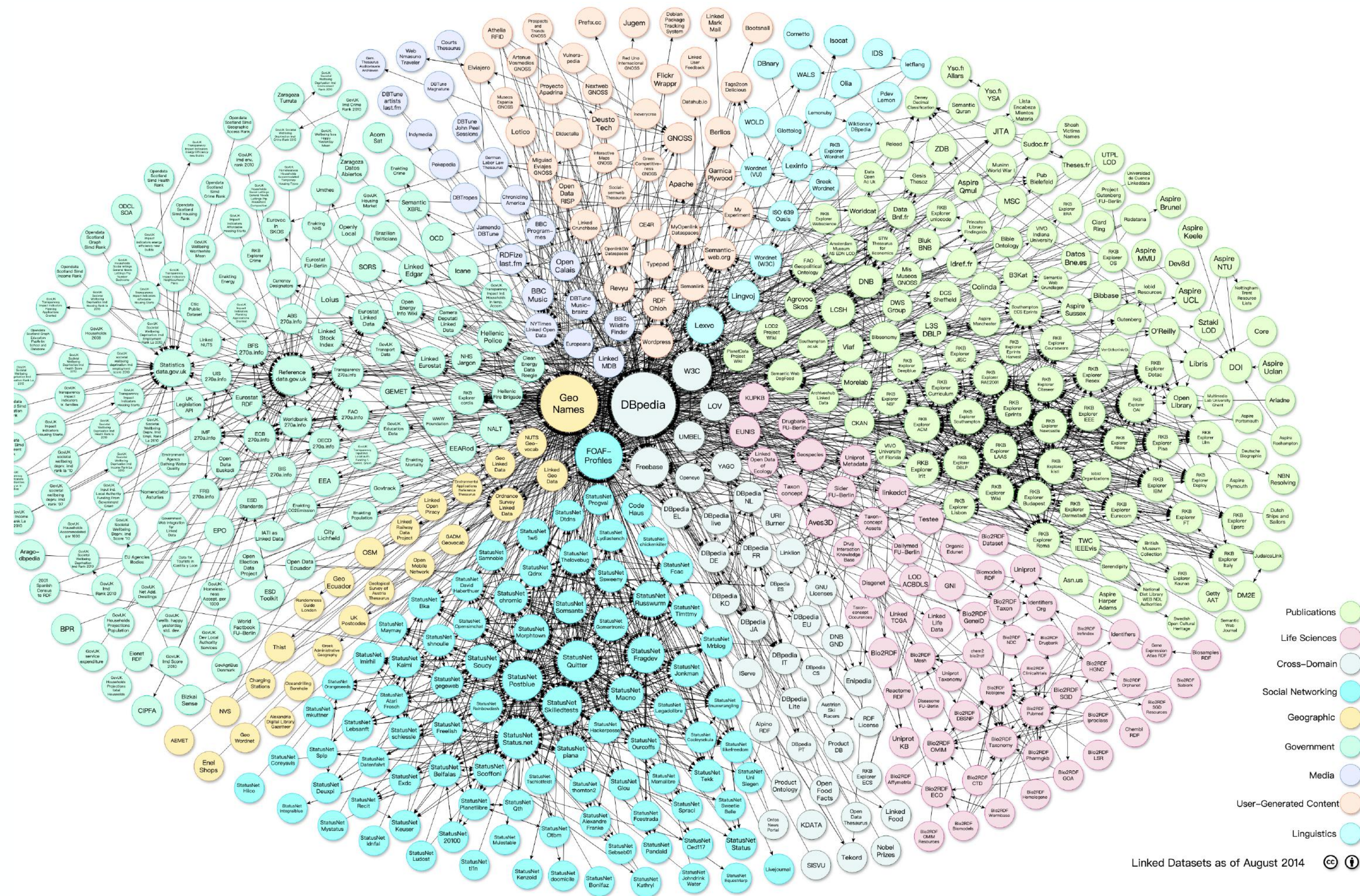
Social Linked Data 社交互联数据



inrupt



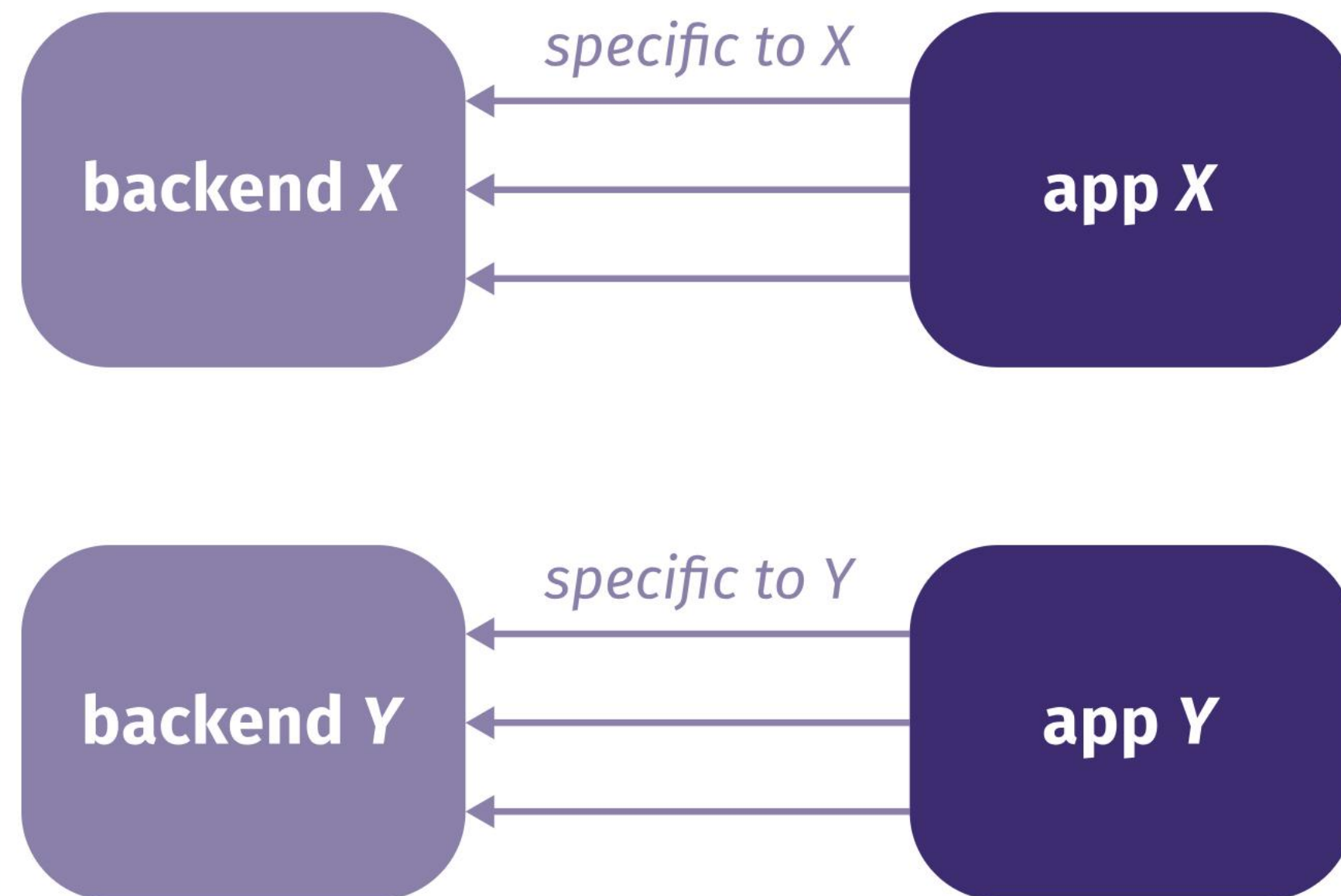
# Linked Data - 关联数据



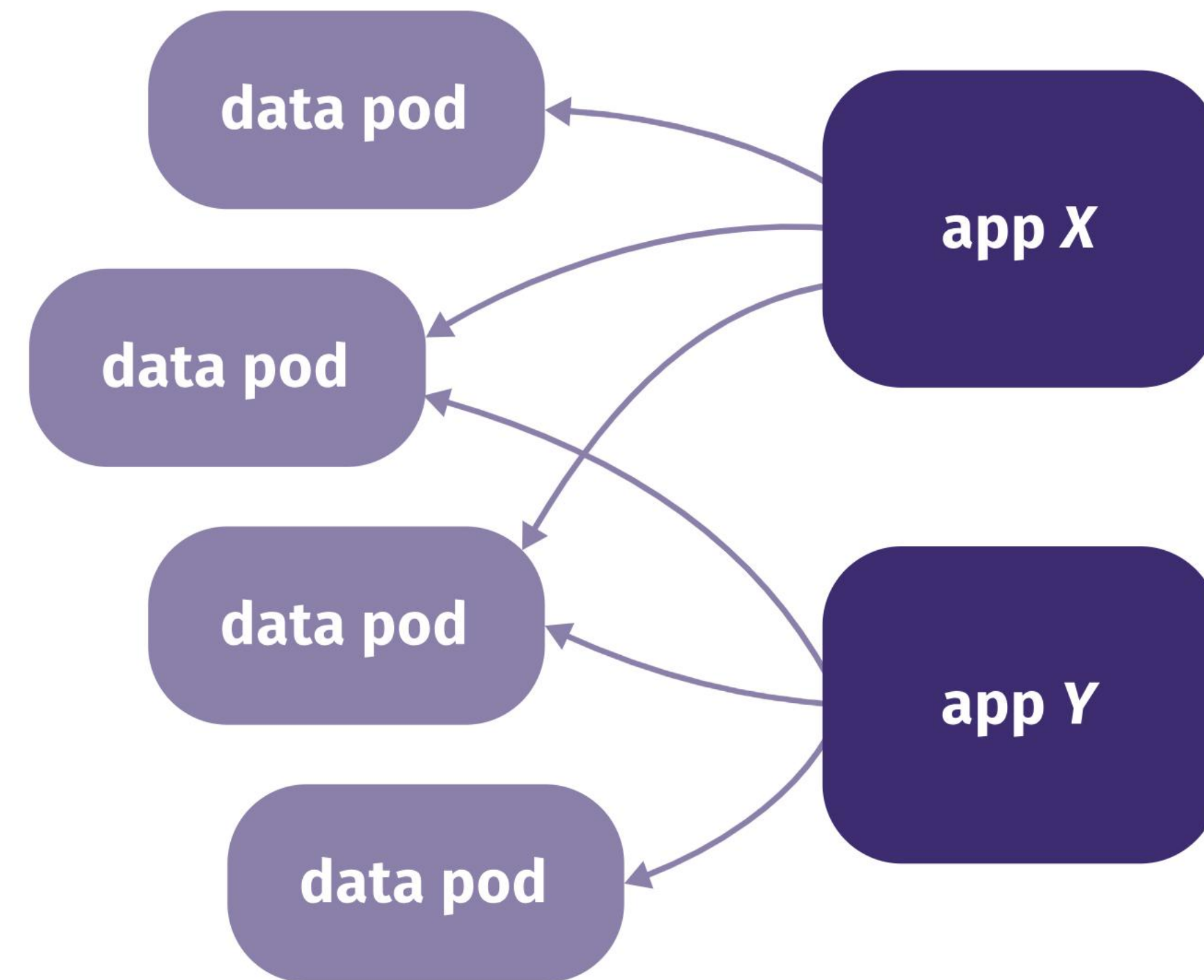


# Why Linked Data

**centralized:** single app & back-end



**decentralized:** multiple apps & back-ends

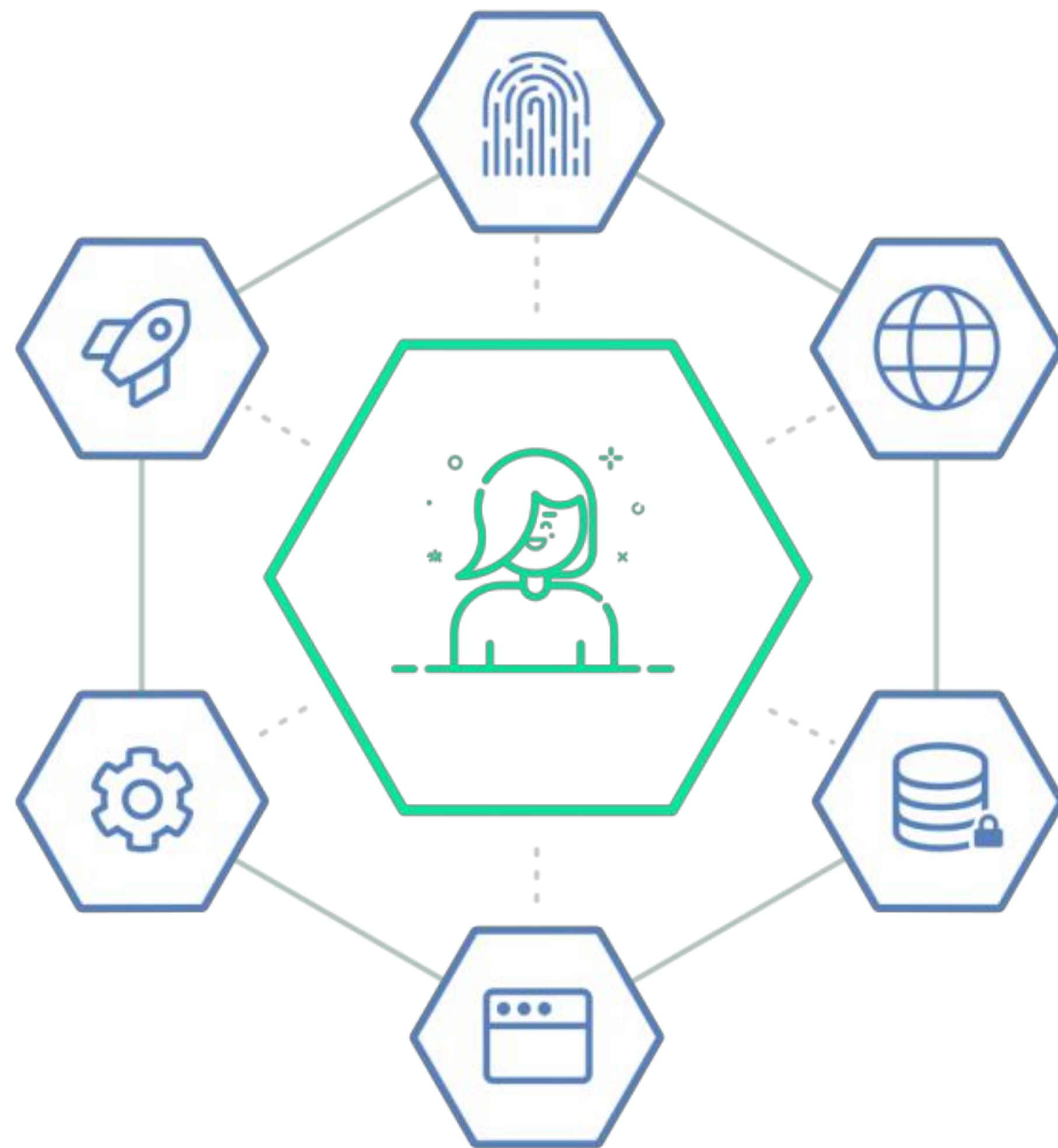


# 数据自有





# 个人网盘 🛠️



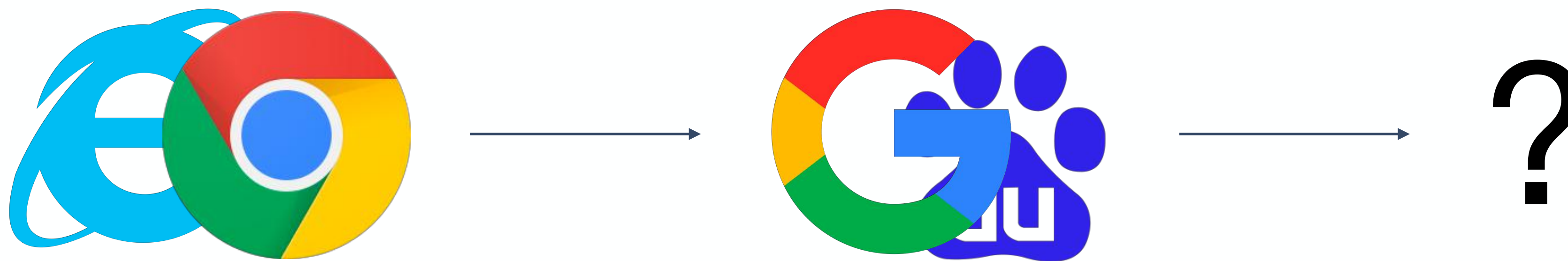
# 互联网身份 🧑



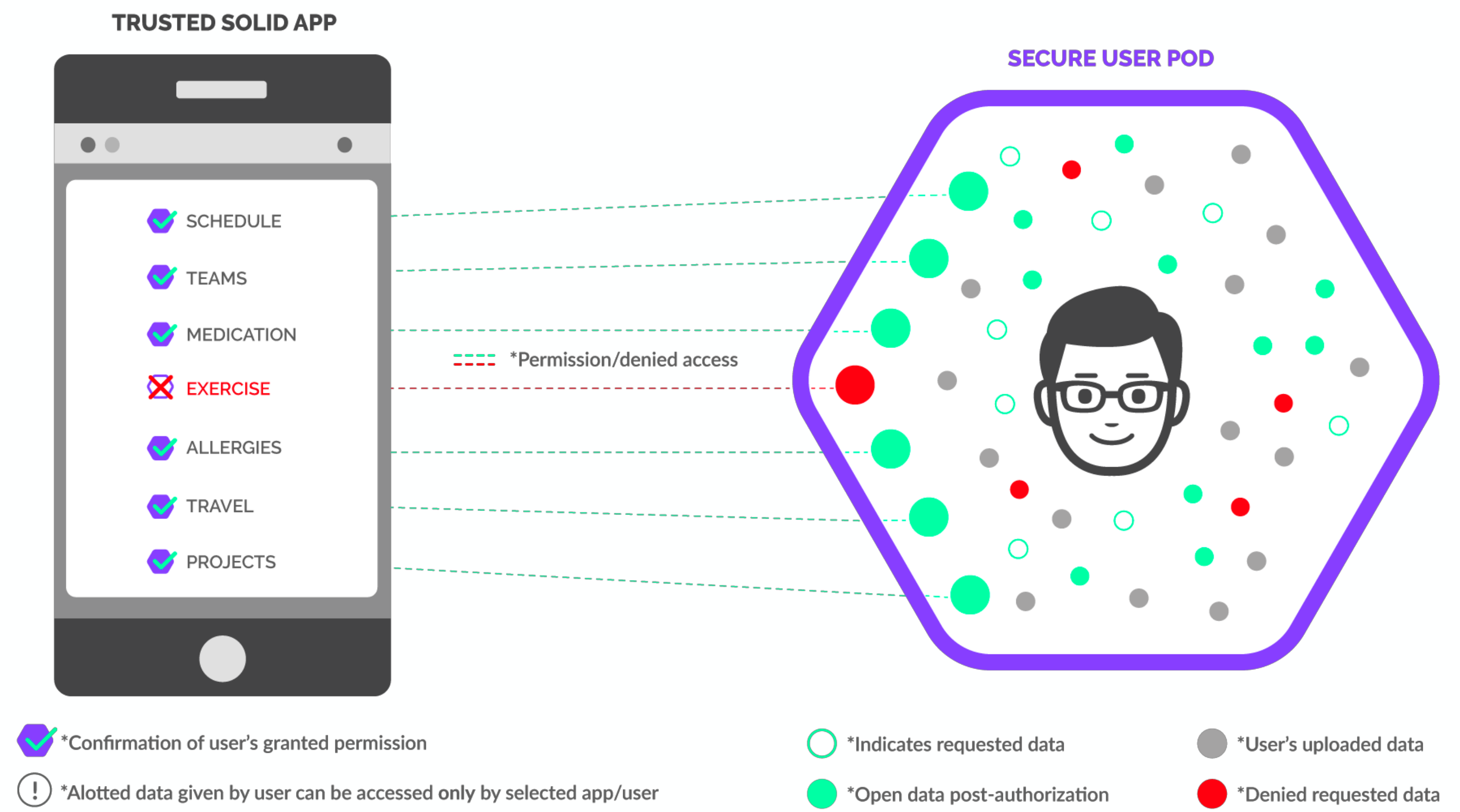
使用 SoLiD 登录



# Web （去） 中心化的历史



# Web （去） 中心化的历史



数据和身份之争



# 数据存储方式的变化

**Author's name and latest profile picture**  
*stored in author's personal data pod*

**Work-related opinion about an article**  
*stored in data pod of author's company*

**Discussed article title and photo**  
*stored in news website's data pod*

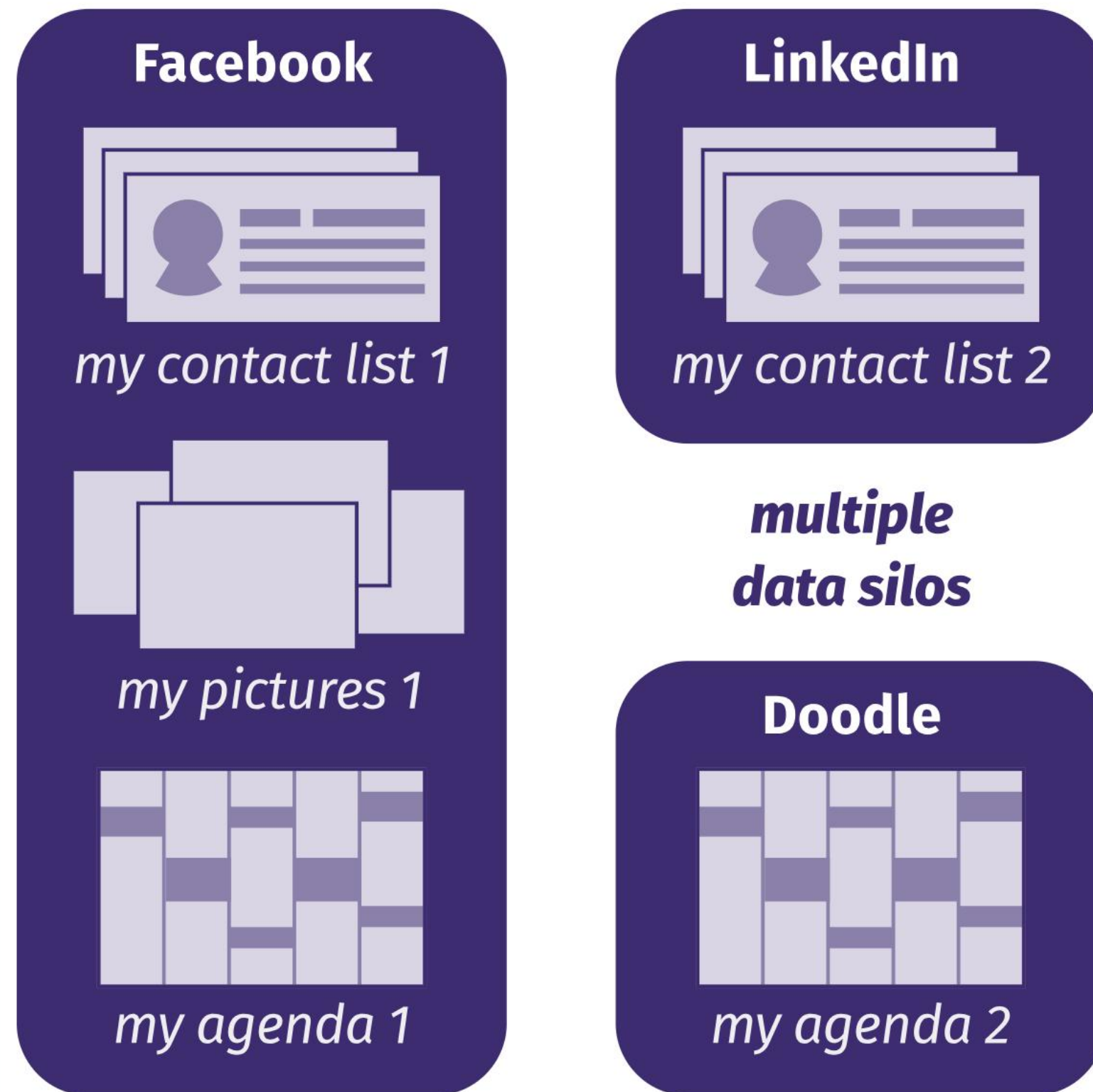
**Likes on this post**  
*each one in different individuals' data pods*

**Comments on this post**  
*each one in different individuals' data pods*

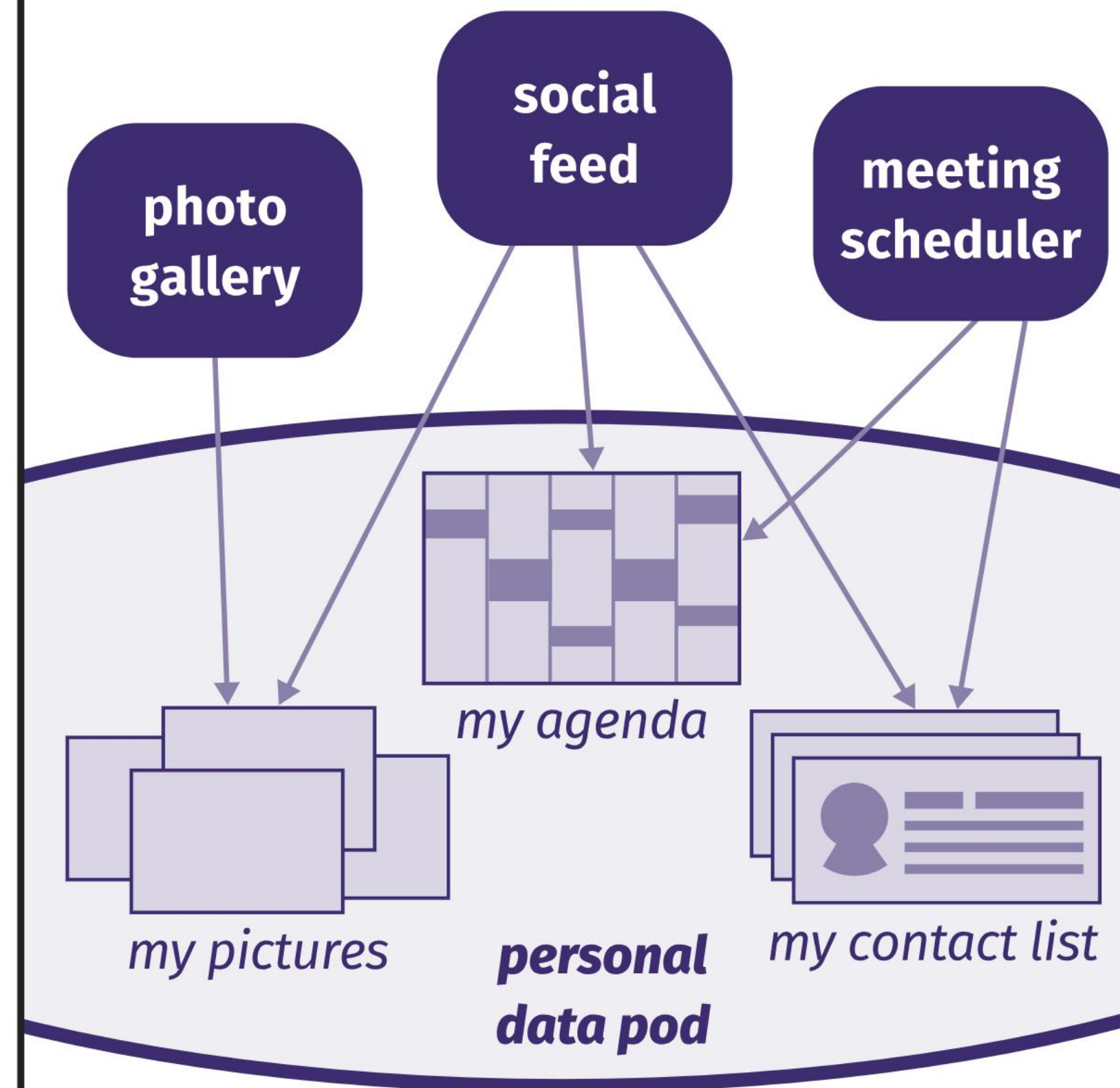


# 数据读取方式的变化

## centralized Web applications



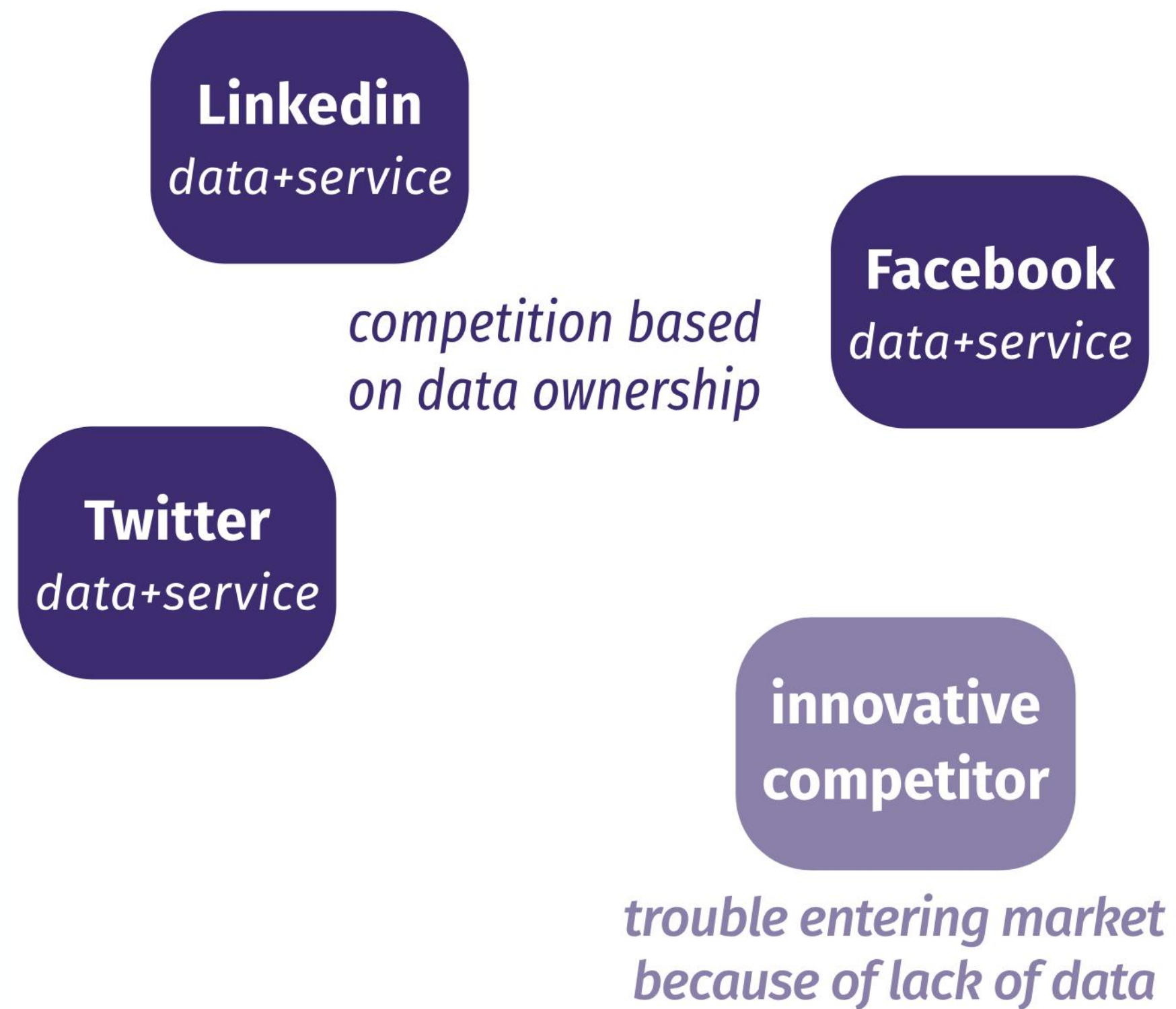
## decentralized Web applications



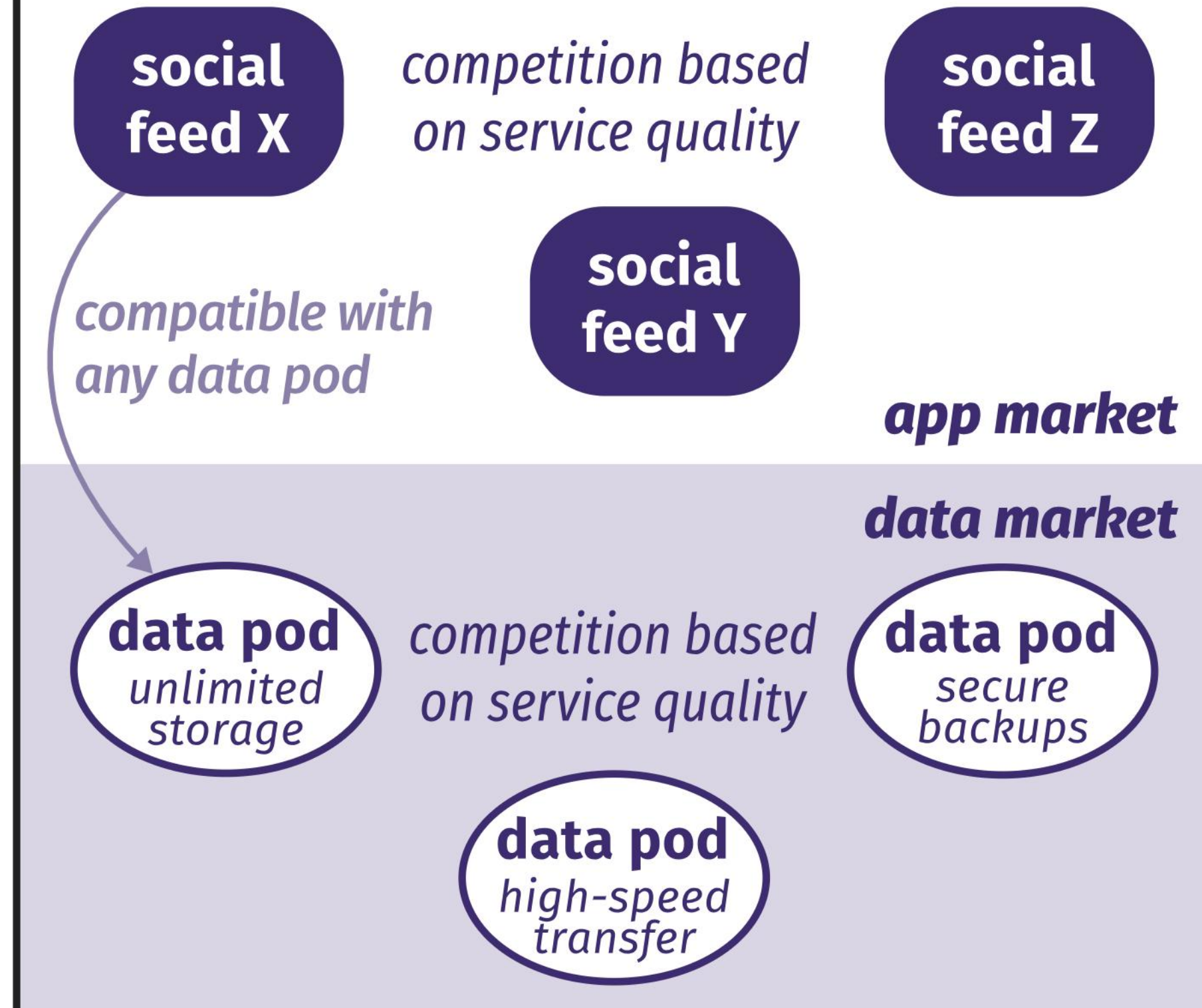


# 创新者入局的变化

## single market for centralized apps



## separate data and app markets





# Inrupt - Work for Everyone

inrupt

Things

Files

Apps

Recent

Chats

To Do

Events

People

Photos

Music

Documents

+ New Chat

RECENT

CLIPPED

Thato Karina

Sept 28

You: I'm adding that as we speak!

Jill, Jessica, Tony

You: Okay

Jenny Brand

Sept 28

I was thinking the same thing.

Jack Dillinger

Sept 28

Absolutely! Talk then.

Aaron Smith

Sept 28

You: Sounds like a plan, see you there

Jill, Jessica, Tony

You: Paris in December I believe.

Thato Karina

Chat | Thato, Thomas

Let's schedule the Paris conference

Yes, definitely!

We also need to invite Sophie & Alexei

I'm adding that as we speak!

Type something

Shared Things

Name	Last Modified	Owner	My Access
Chat with Sophie	9:00am	Me, Sophie M	Can edit Owner
Marlborough meeting nc	10:05am	Me, Alexei, Sophie M, Thato K	Can edit Owner
Paris Conference schedl	9/16/18	Me	Owner Can edit

TEAM LINEUP

Marlborough Greenhouses

These are the members of the team. To access shared information, select member's bubble.

Thato

Lead Technical Analyst, Cape Town

Sophie

Account Coordinator, Paris

Andrei

Senior Visual Designer, Moscow

Schedule Meeting

TEAM MEMBER

2

TEAMS

7

PROJECTS

302

FOLLOWERS

Thato Karina

Hi, I'm Thato, here to answer all your coding questions, program your gadgets & explain what I do at least 5x daily - never tired of it. UCLA alum. Big dog enthusiast. New dad.

TEAMS

PROJECTS

MESSAGE

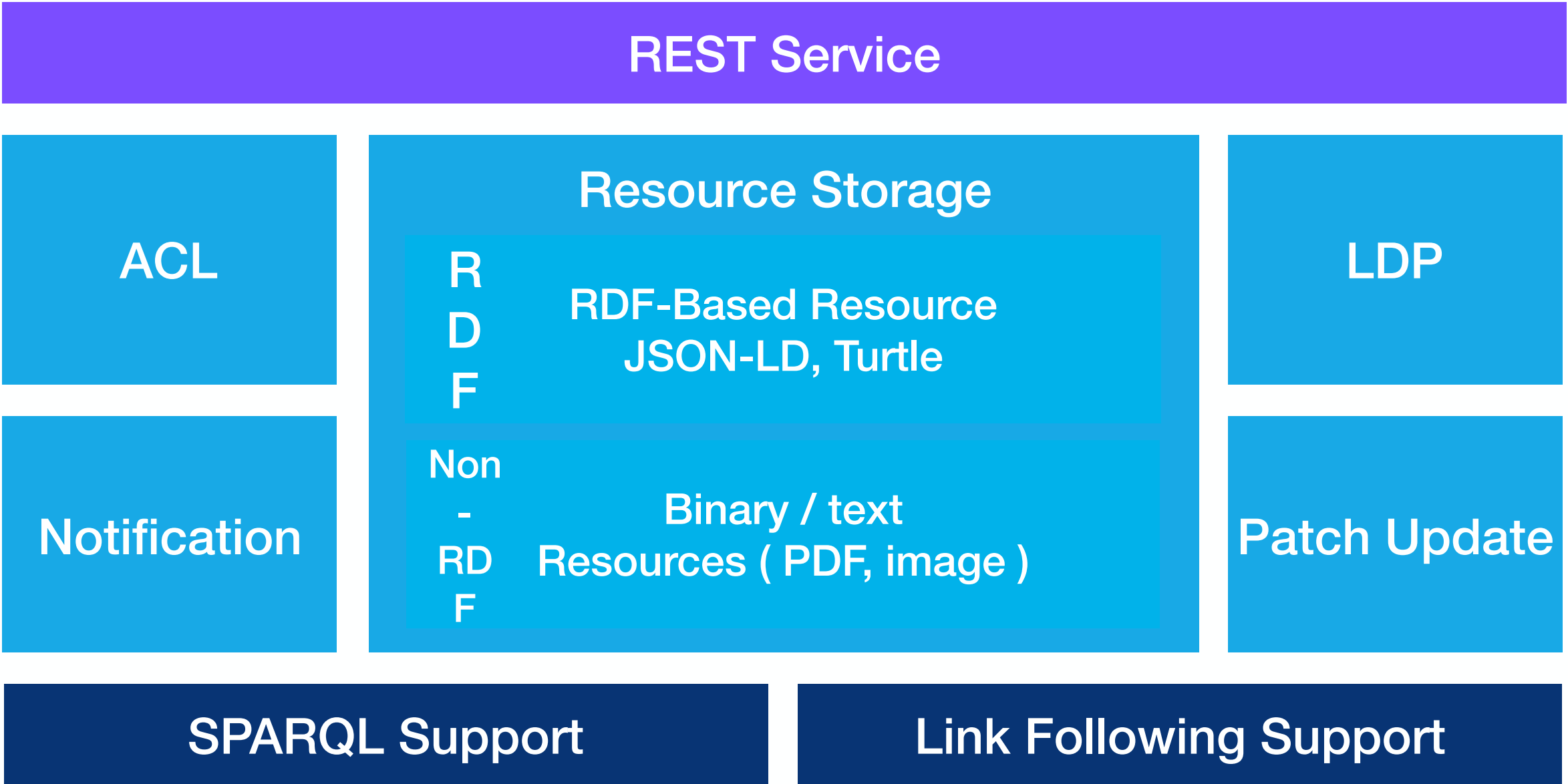
HEALTH

SCHEDULE

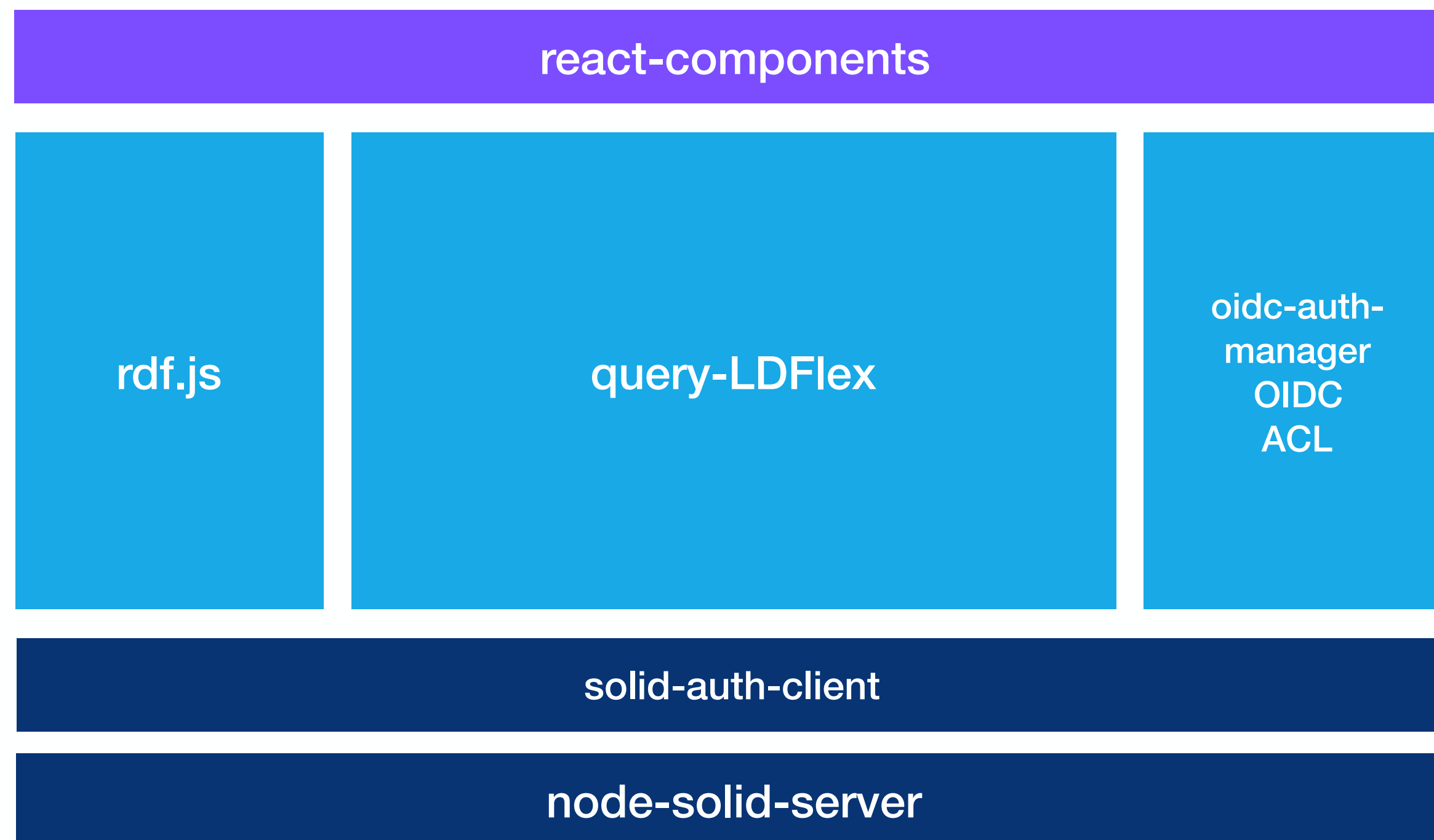
MEETING



# SoLiD 基础技术架构



# SoLiD 开源生态

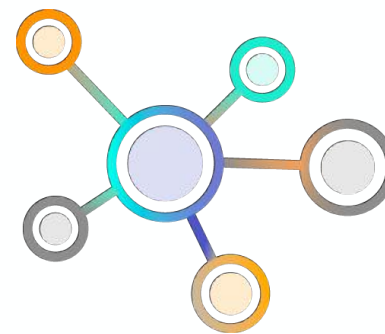




# Show me the code



RDF



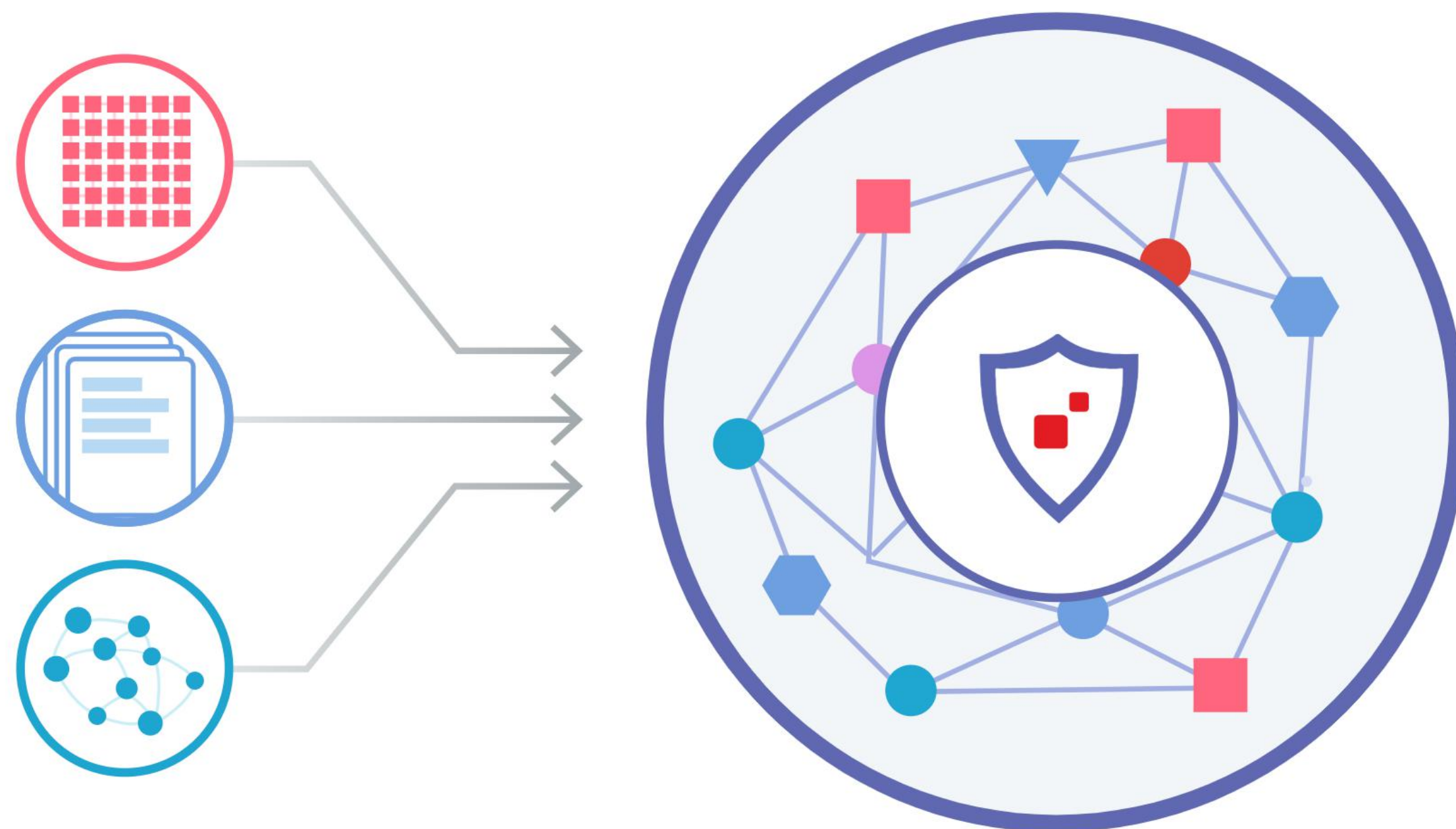
SPARQL



序列化方式



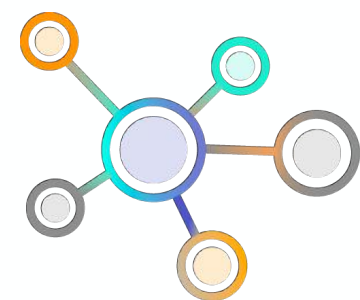
资源描述框架, Resource Description Framework



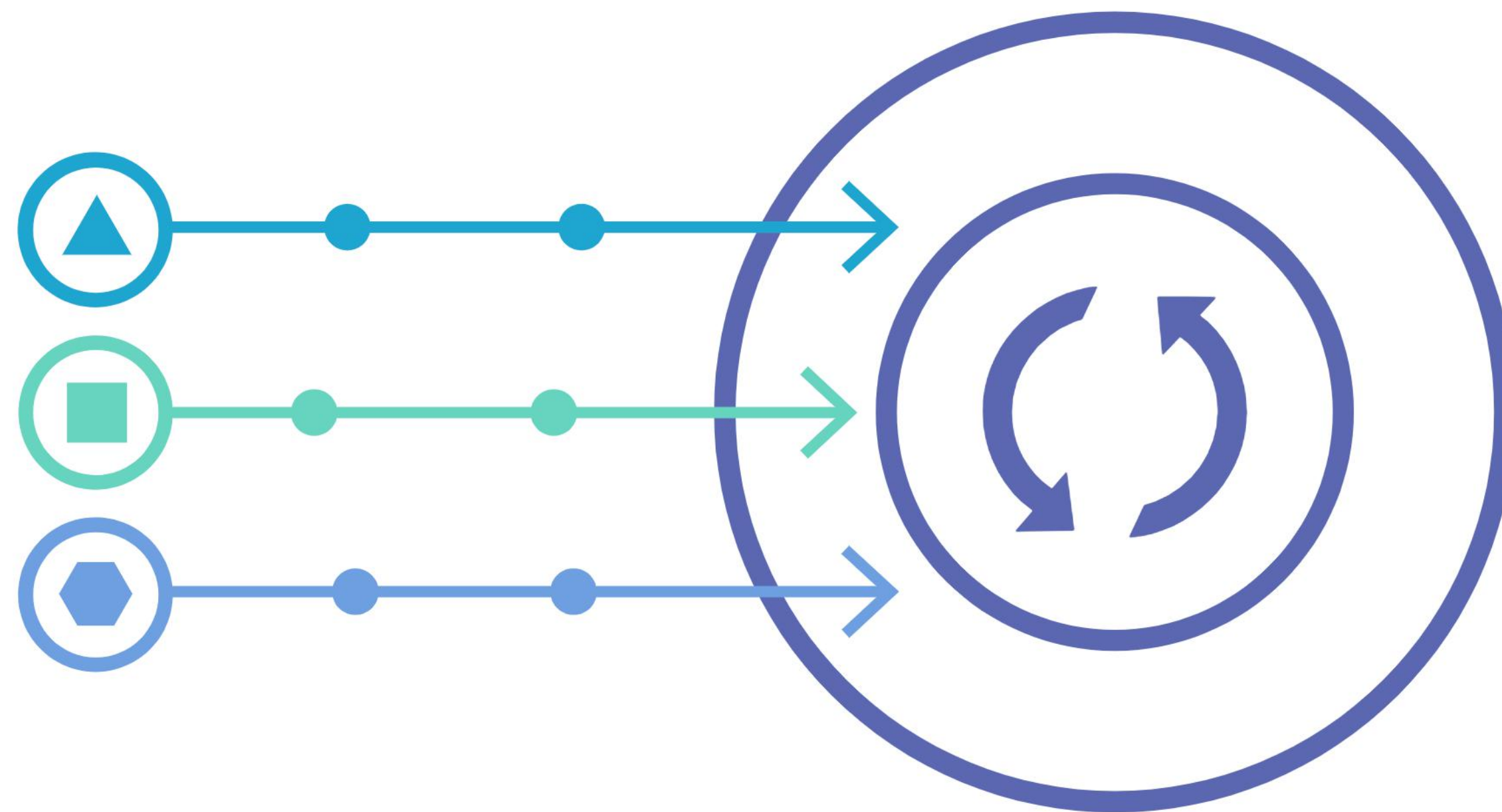
对象	主(s)
↓	↓
属性	谓(p)
↓	↓
值	宾(o)

$\{ p, s, o \} \rightarrow \{ \text{http://www.inrupt.com}, \text{创建者}, \text{Tim} \}$





# SPARQL

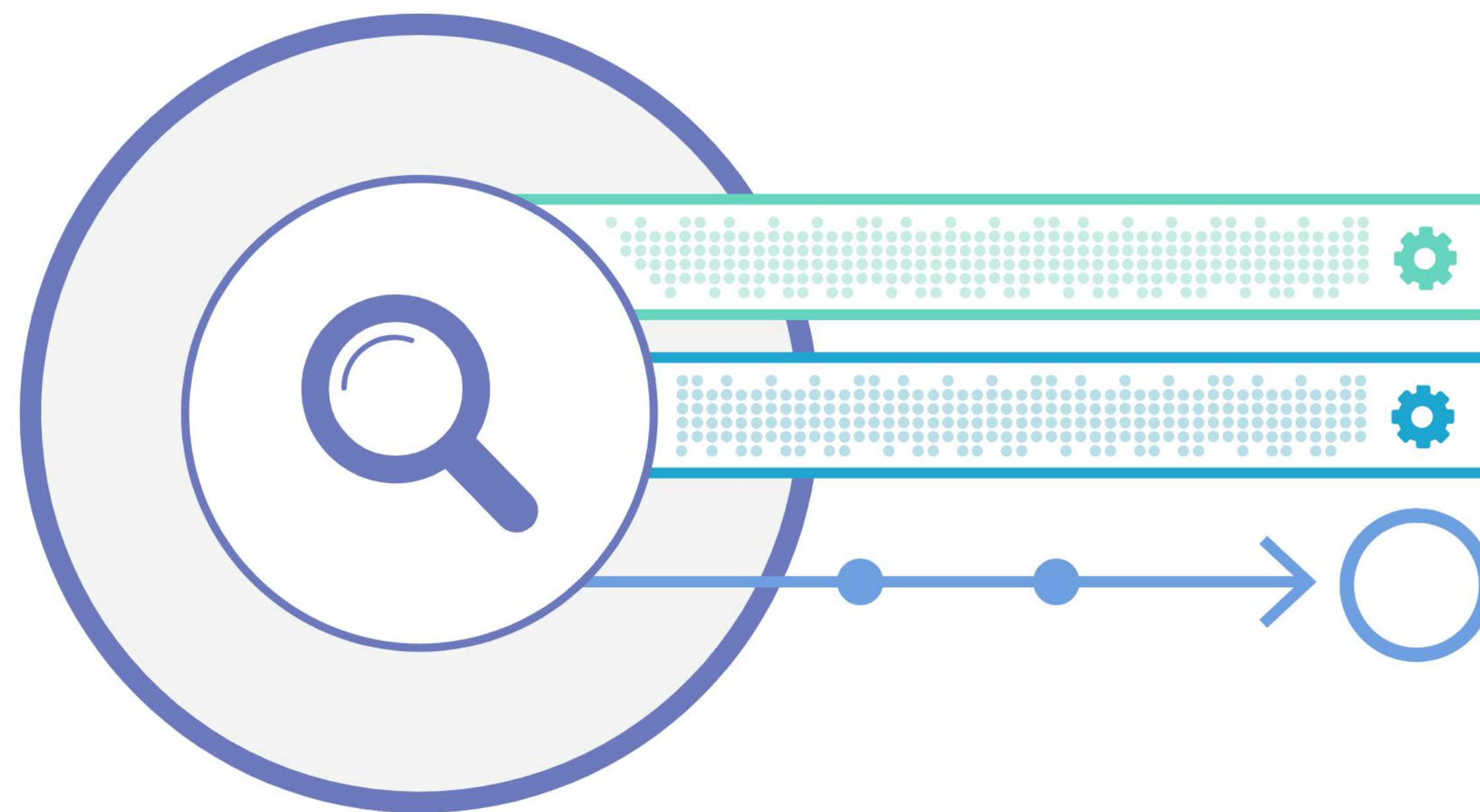


RDF 查询语言和数据获取协议



# 序列化方式

RDF/XML, N-Triples, Turtle, RDFa, JSON-LD





# Turtle VS JSON-LD

```
@prefix : <#>.
@prefix solid: <http://www.w3.org/ns/solid/terms#>.
@prefix pro: <./>.
@prefix n0: <http://xmlns.com/foaf/0.1/>.
@prefix st: <http://www.w3.org/ns/posix/stat#>.

:me
  a schem:Person, n0:Person;
  ldp:inbox inbox;
  sp:preferencesFile </settings/prefs.ttl>;
  sp:storage n1;
  solid:account n1;
  solid:privateTypeIndex </settings/privateTypeIndex.ttl>;
  solid:publicTypeIndex </settings/publicTypeIndex.ttl>;
  n0:name "alicea".
```

```
{
  "@context": "https://json-ld.org/contexts/
person.jsonld",
  "@id": "http://dbpedia.org/resource/John\_Lennon",
  "name": "John Lennon",
  "born": "1940-10-09",
  "spouse": "http://dbpedia.org/resource/Cynthia\_Lennon"
}
```

# 开发第一个基于 SoLiD 的应用

- SoLiD 规范
- 使用 SoLiD 进行登录、退出和身份认证
- 从 SoLiD Pod 中读取数据



# 预备知识

- 基础 HTML 和 CSS
- 中级 JavaScript 技能
- jQuery 基础技能

# SoLiD 规范

- Web ID (<https://ivydom.solid.authing.cn/profile/card#me>)
- 用户资料
- 认证
- 鉴权 (ACL)
- RDF、JSON-LD、Turtle、HTML + RDFa
- RESTful、Websockets



# SoLiD 身份认证

Select your Identity Provider

https://solid.authing.cn/common/popup.html

## Log in to **solid.authing.cn**

Please enter your WebID or the URL of your identity provider:

Go

Or pick an identity provider from the list below:

<b>solid.authing.cn</b>	<b>Solid Community</b>
<b>Solid Test Space</b>	<b>Inrupt</b>

solid-auth-client

# 处理登录/退出事件

```
async function popupLogin() {  
  let session = await solid.auth.currentSession();  
  let popupUri = 'https://solid.authing.cn/common/popup.html';  
  if (!session)  
    session = await solid.auth.popupLogin({ popupUri });  
  alert(`Logged in as ${session.webId}`);  
}  
popupLogin();
```

---

```
solid.auth.logout()  
  .then(() => alert('Goodbye!'));
```



# 响应用户登录状态

```
solid.auth.trackSession(session => {  
  if (!session)  
    console.log('The user is not logged in')  
  else  
    console.log(`The user is ${session.webId}`)  
});
```

# 从 Pod 中读取数据

```
solid.auth.fetch('https://timbl.com/timbl/Public/friends.ttl')  
  .then(console.log);
```

---

```
c:me n0:name "Henry Story".
```

```
d:course n0:maker c0:i.
```

```
Joe:JL n0:firstName "Joe"; n0:name "Joe Lambda".
```

```
Rob:RMH a n0:Person; n0:name "Robert Hoffmann".
```

```
<http://dig.csail.mit.edu/2008/2002/01/tr-automation/tr.rdf>
```

```
n1:title "W3C Standards and Technical Reports".
```

```
<http://dig.csail.mit.edu/2008/webdav/timbl/foaf.rdf>
```

```
  a n0:PersonalProfileDocument;
```

```
  n:license n2;;
```

```
  n1:title "Tim Berners-Lee's FOAF file";
```

```
  n0:maker c0:i;
```

```
  n0:primaryTopic c0:i.
```

```
fo:cm
```

```
  a n0:Person;
```

```
  rd:seeAlso <http://www.koalie.net/foaf.rdf>;
```

```
  n0:name "Coralie Mercier".
```

# 不止于结构化数据

```
guessFileType: function(url){
  var ext = url.replace(/.*\./, '')
  if( ext.match( /\$/ ) )      return 'folder'
  if( ext.match( /(md|markdown)/ ) ) return 'text/markdown'
  if( ext.match( /html/ ) )    return 'text/html'
  if( ext.match( /xml/ ) )     return 'text/xml'
  if( ext.match( /ttl/ ) )     return 'text/turtle'
  if( ext.match( /n3/ ) )      return 'text/n3'
  if( ext.match( /rq/ ) )      return 'application/sparql'
  if( ext.match( /css/ ) )     return 'text/css'
  if( ext.match( /txt/ ) )     return 'text/plain'
  if( ext.match( /json/ ) )    return 'application/json'
  if( ext.match( /js/ ) )      return 'application/javascript'
  if( ext.match( /(png|gif|jpeg|tif)/ ) ) return 'image'
  if( ext.match( /(mp3|aif|ogg)/ ) ) return 'audio'
  if( ext.match( /(avi|mp4|mpeg)/ ) ) return 'video'
  /* default */               return 'text/turtle'
},
```

发送相应的 Content-Type 即可



# SoLiD 和 IPFS

```
import SolidIPFS from 'solid-ipfs';

const main = async () => {
  const solidIpfs = new SolidIPFS({
    url: 'YOUR_SOLID_URL', // e.g. https://alicea.solid.authing.cn/inbox/
  });

  const result = await solidIpfs.storeHash({
    hash: 'YOUR_IPFS_HASH',
  });

  console.log(result, result ? '保存成功' : '保存失败');
}

main();
```

# LDFlex

## rdf.js

```
const store = $RDF.graph();  
const fetcher = new $RDF.Fetcher(store);  
const fullName = store.any($RDF.sym(user), FOAF('name'));  
$('#fullName').text(fullName && fullName.value);
```

---

## LDFlex

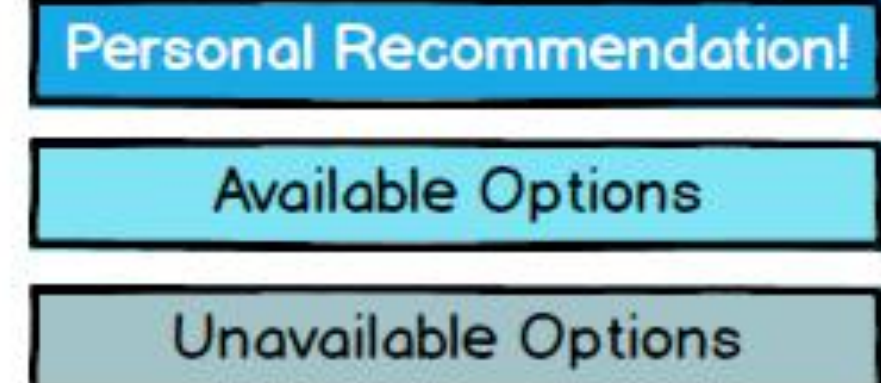
```
solid.data['https://ivydom.solid.authing.cn/profile/#me'].firstName;
```

# SoLiD 学习路线图

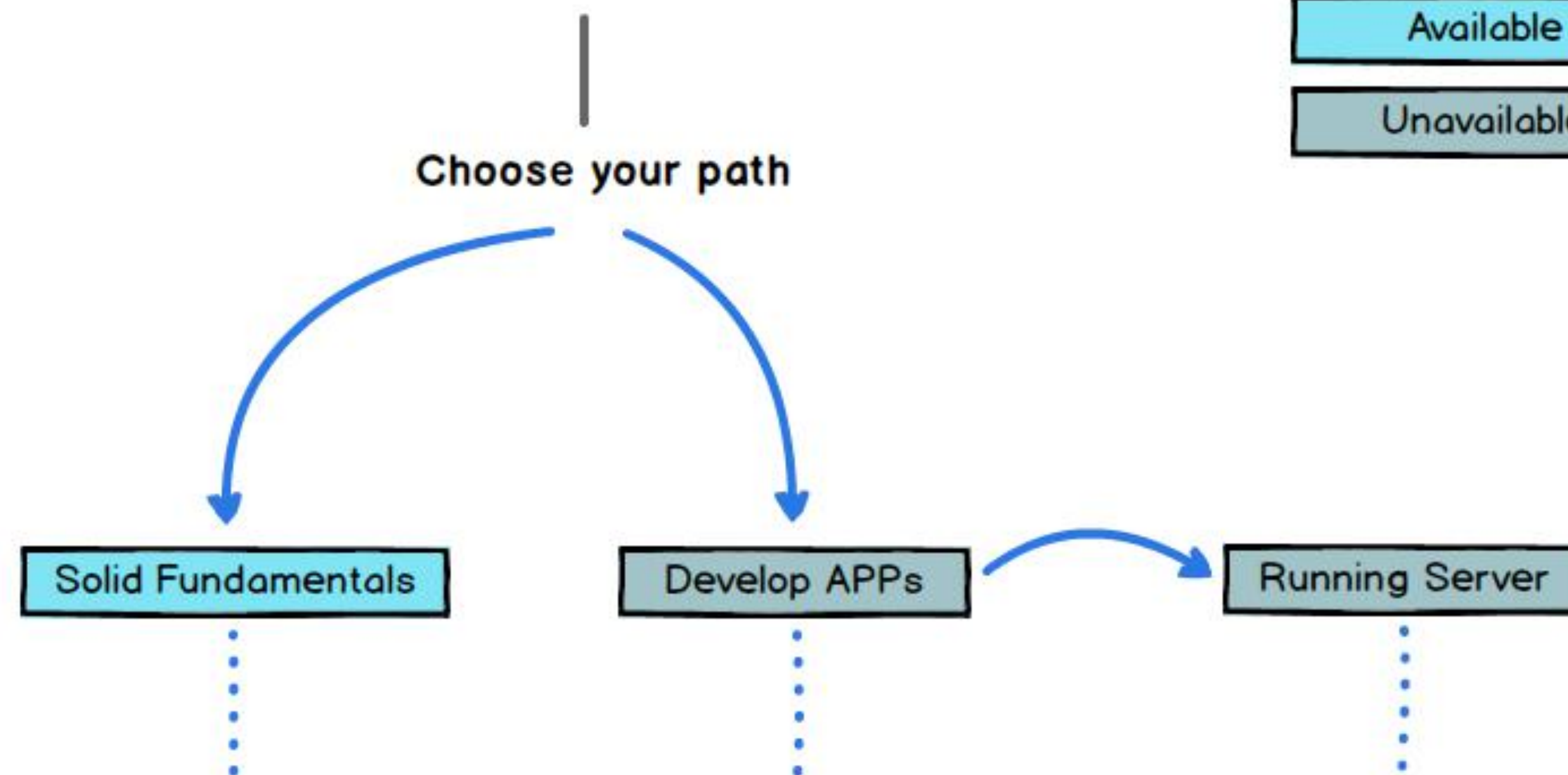
Required for any path



Legends



## SoLiD Developer in 2019



[Github.com/LearnSolid/solid-roadmap](https://github.com/LearnSolid/solid-roadmap)



# SoLiD 缺陷 💩



开发者不友好



天生对抗



UI 反人类



稳定性未被验证

Your turn.

