Blockchain Powered Internet

&

Elastos Runtime

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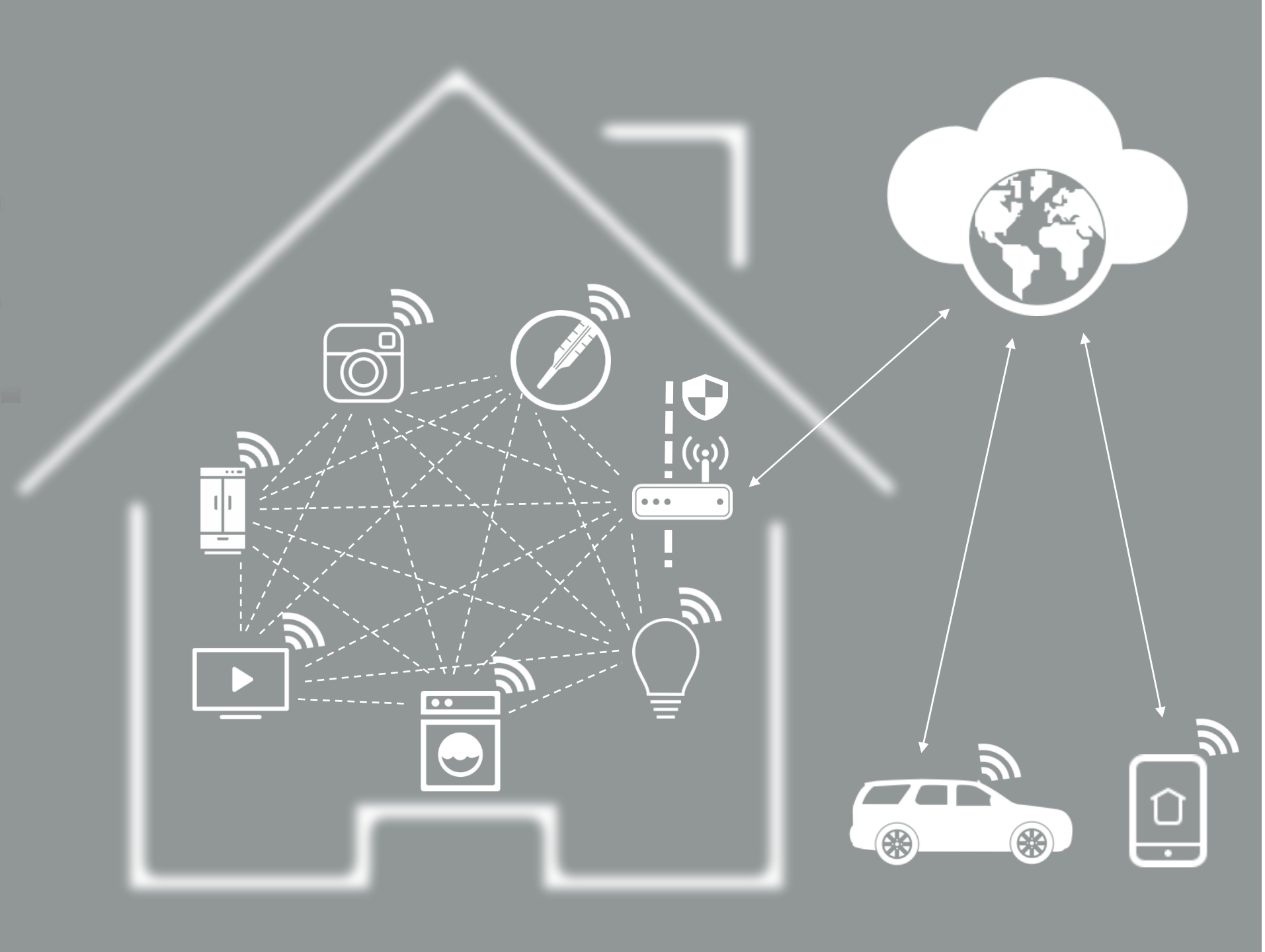


IoT Challenges

1. Security and Safety
2. Embedded and Real-time
3. Distributed and Decentralized
4. Main Stream Programming
5. User Content Monetization

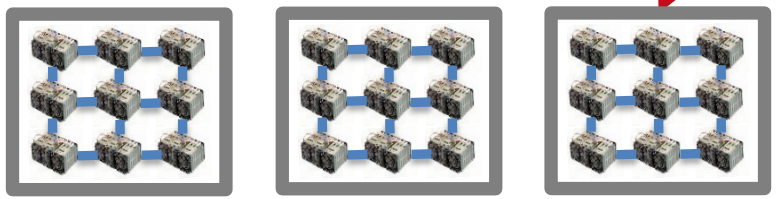
A Decentralized (Server-less) App Scenario

Instant app without intermediaries

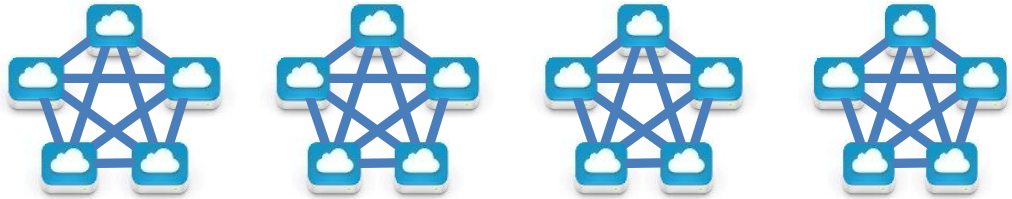
pay

A Decentralized Internet with Trust Worthy IDs

Connect the virtual & physical world



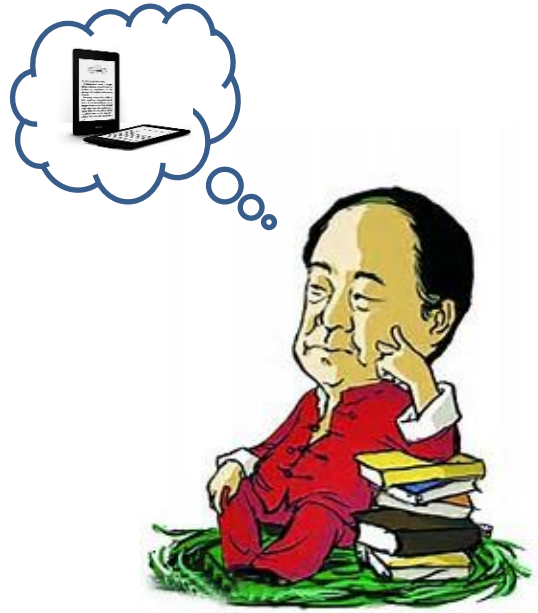
Blockchain Computers



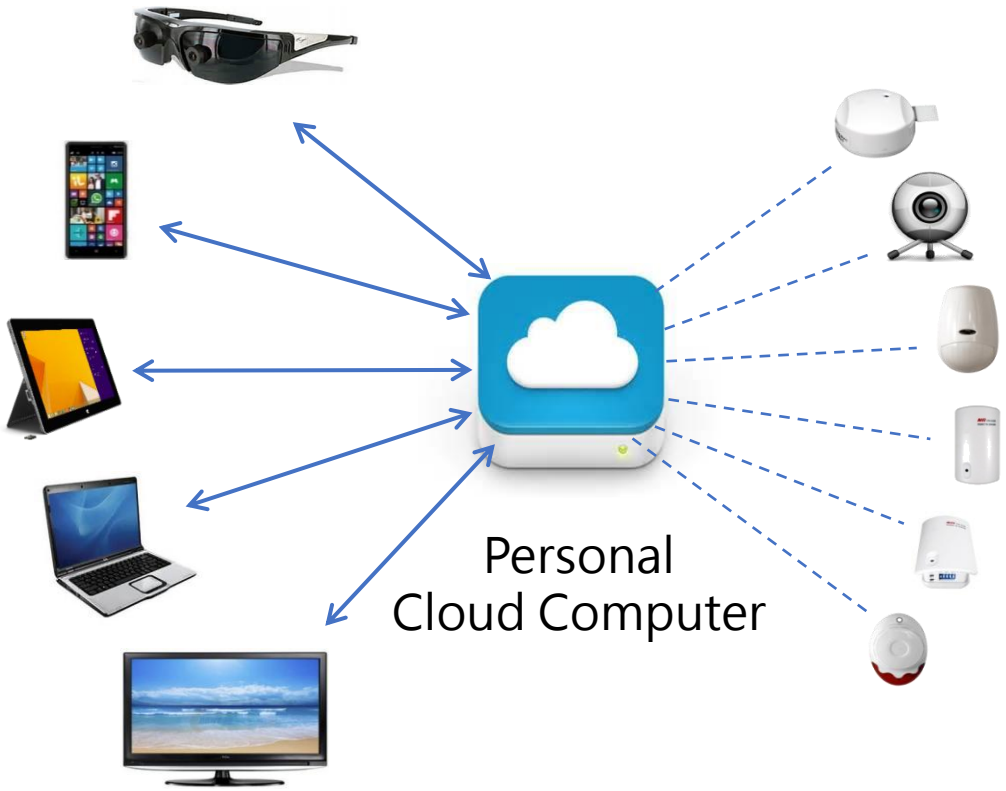
Mobile & IoT Devices Run on Different Carrier Networks

Creating Scarcity of Digital Contents

- Amazon does NOT sell eBooks, it sells a life time lease, instead;
- Blockchain solves the scarcity problem, but piracy remains a threat;
- Authors mandate business model via smart-contracts;
- Sharing apps via social networks heralds a new era of possibilities.
  - ✓ Media players used to be intermediaries that control profits;
  - ✓ An unified runtime VM is the key for digital content execution.



Smart Terminals and Smart Peripherals

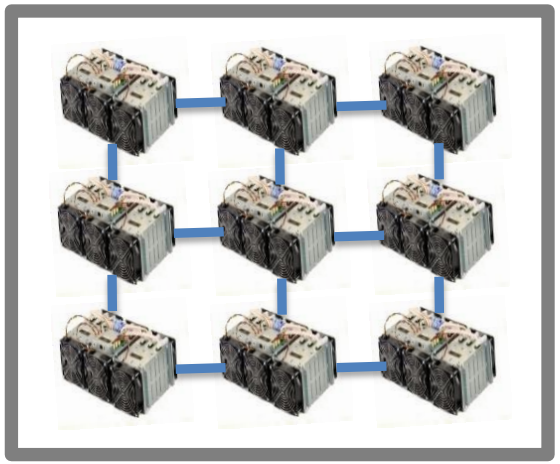


- Same app for all smart terminals;
- Cloud storage for all apps;
- IoT devices as peripherals (no Internet);
- Apps access IoT devices via Web services;
- Languages inter-operate automatically;
- No OS runtime fragmentations.

End-to-End Solution for a Safer Cyberspace

- Apps run inside virtual machines;
- Metadata driven programming paradigm;
- Linux kernel is merely a modern BIOS;
- Apps, Services and IoT devices are prohibited from access the Internet directly;
- Drivers, Demons and Sockets are deprecated.

What is a Blockchain?



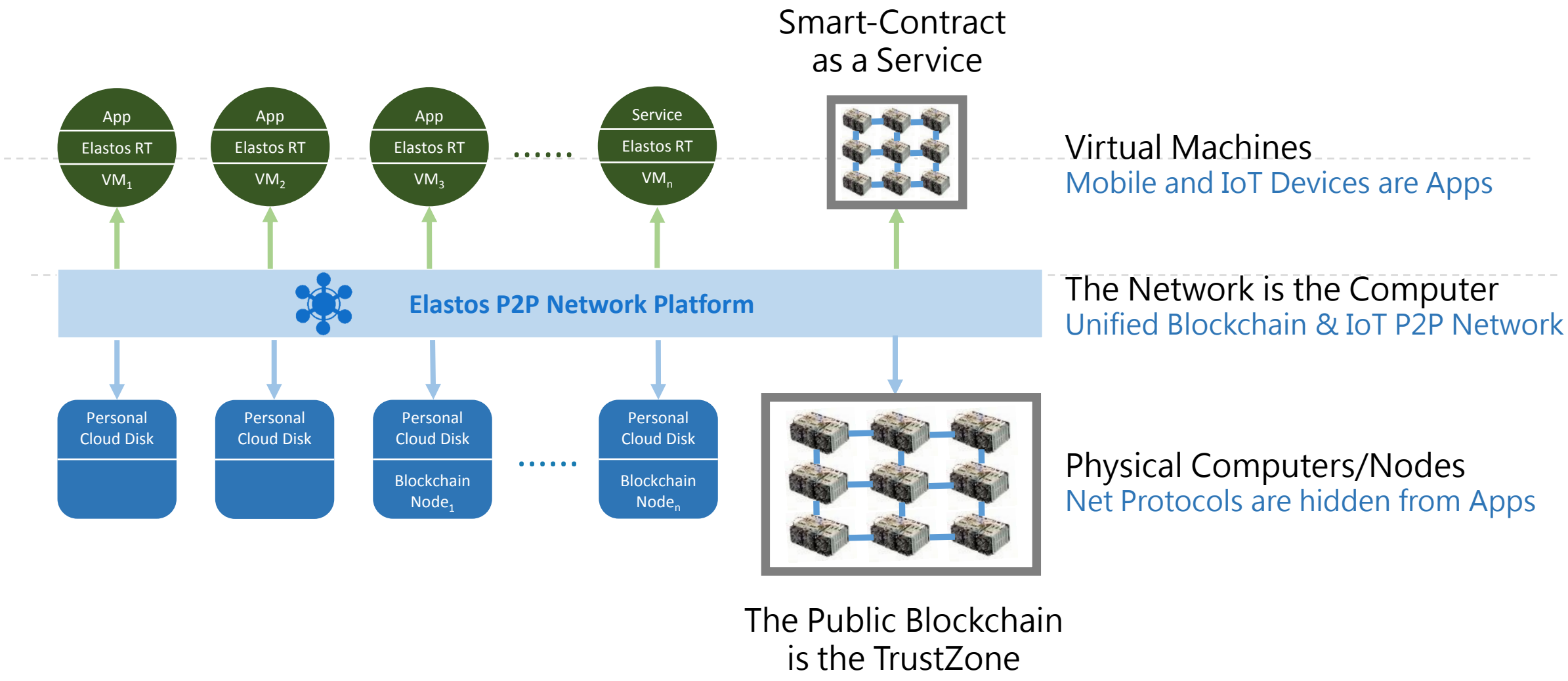
Duplicated Computing
(the computation power
is less than a single node)

- A blockchain is really a blockchain computer;
- The peer-to-peer network of a blockchain is merely an internal bus;
- Apps of a blockchain are called smart-contracts or DApps;
- A single computer CAN NOT scale to a network of computers.

The TrustZone of a Smart Phone

- Fingerprint information are NOT stored on the hard-drive to guard from viruses;
- There is a special purpose computer called TrustZone;
- The TrustZone has its own kernel, storage and apps;
- The app ecosystem are build on top the main CPU.

Building a Decentralized Internet Platform



You Own Your Own Data

C:/Programs/elastos.org/local-app.exe

E:/Programs/tangle-app.exe

X:/Programs/network-app.exe

elastos.org://foo.eco

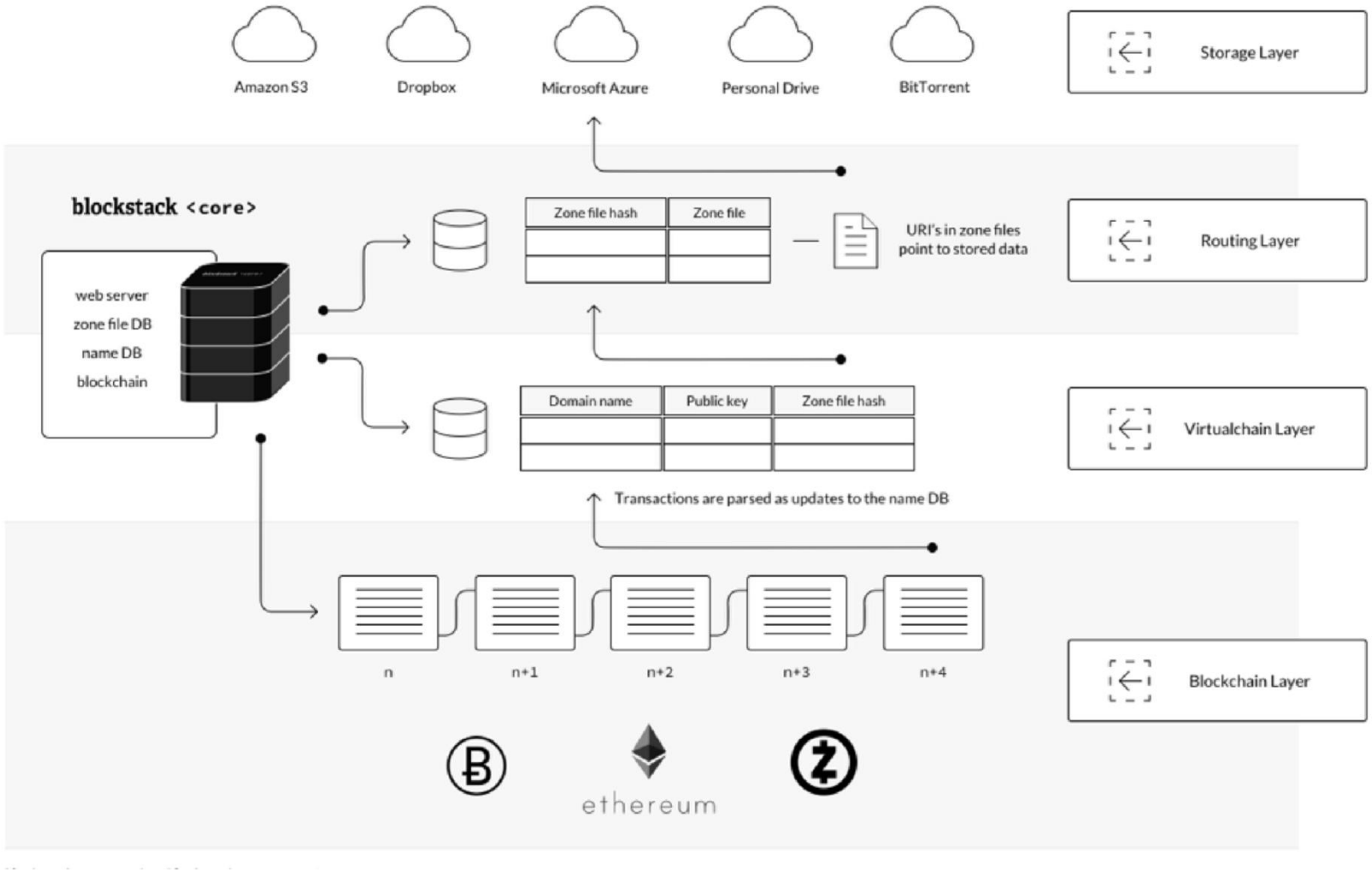
utube.com://vedio.eco

university.edu://paper.eco

Software Defined Computer Consists of:

- Multi-CPU,
- Multi-Screen,
- Multi-Storage,
- Multi-Compute

You Own Your Own Data (Blockstack)

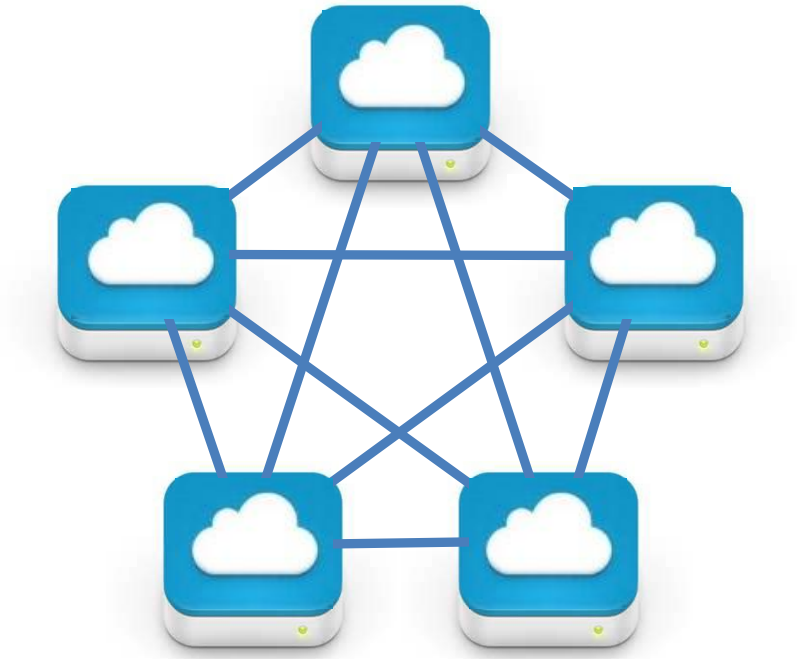


Decentralized Apps Planned on Blockstack:

- Voting
- Marketplaces
- Identity verification
- Crowdfunding
- Messaging
- File sharing
- Document signing
- Video sharing
- Decentralized Reddit
- Decentralized Twitter

Blockstack.org

Decentralized Network of Multiple Computers



- A Van Neumann machine, with cloud mass storage and local HD as cache, is an Elastos computer;
- An Elastos carrier consists of a peer-to-peer network of Elastos computers ;
- Apps execute inside VMs on an Elastos computer of an Elastos carrier.
- Industrial IoT and Smart homes require a P2P Network that facilitates video streaming, text messaging, and P2P file sharing protocols.

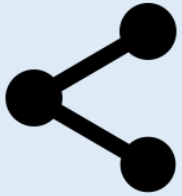
Three Open Source Projects of Elastos

Applications

Personal Clouds/Portals

Apps/Services

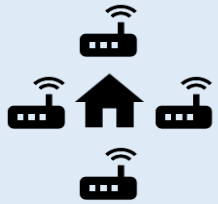
Social Groups/Consortiums



The Platform

Elastos Runtime

Elastos P2P Network

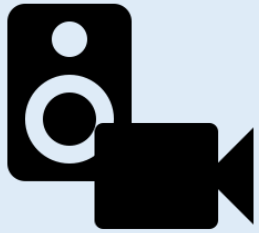


Elastos Blockchain

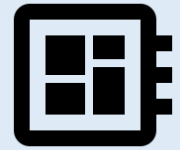
IoT Devices

Smart Terminals

IoT Gateways



IoT Devices



IoT Sensors

Elastos 2015

Elastos on Banana Pi

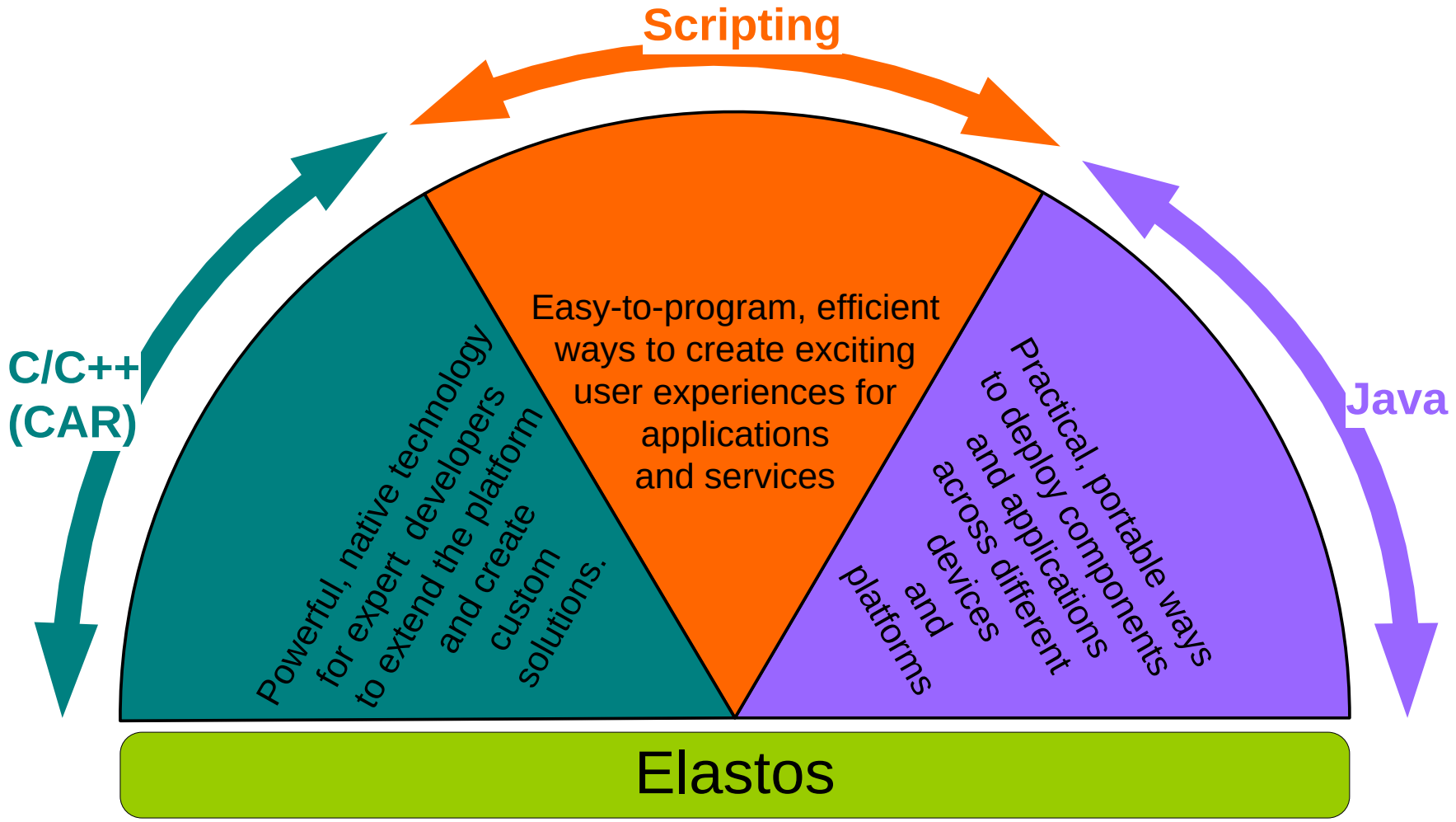
Elastos Smart-Router

Elastos 2016

Elastos Smart-Phone XT1085

Elastos on Raspberry Pi 3

Elastos Hybrid Programming Model



Android-Like Programming in JS, Java & C/C++


Launcher


Settings


Pinyin IME


Calculator


Dialer


Browser


Files


Calendar


Contacts


Messages


Music

Elastos Code Snippets

```javascript
var eventHandler = {
   OnEvent:function(i) {
      var s = 'call OnEvent, i: ' + i;
      elastos.log(s);
   }
};

var module = elastos.require('Demo.eco');
var demoObj = module.createObject('CDemo');
demoObj.addEventHandler(eventHandler);
demoObj.doTask();
```

JavaScript

Demo.eco

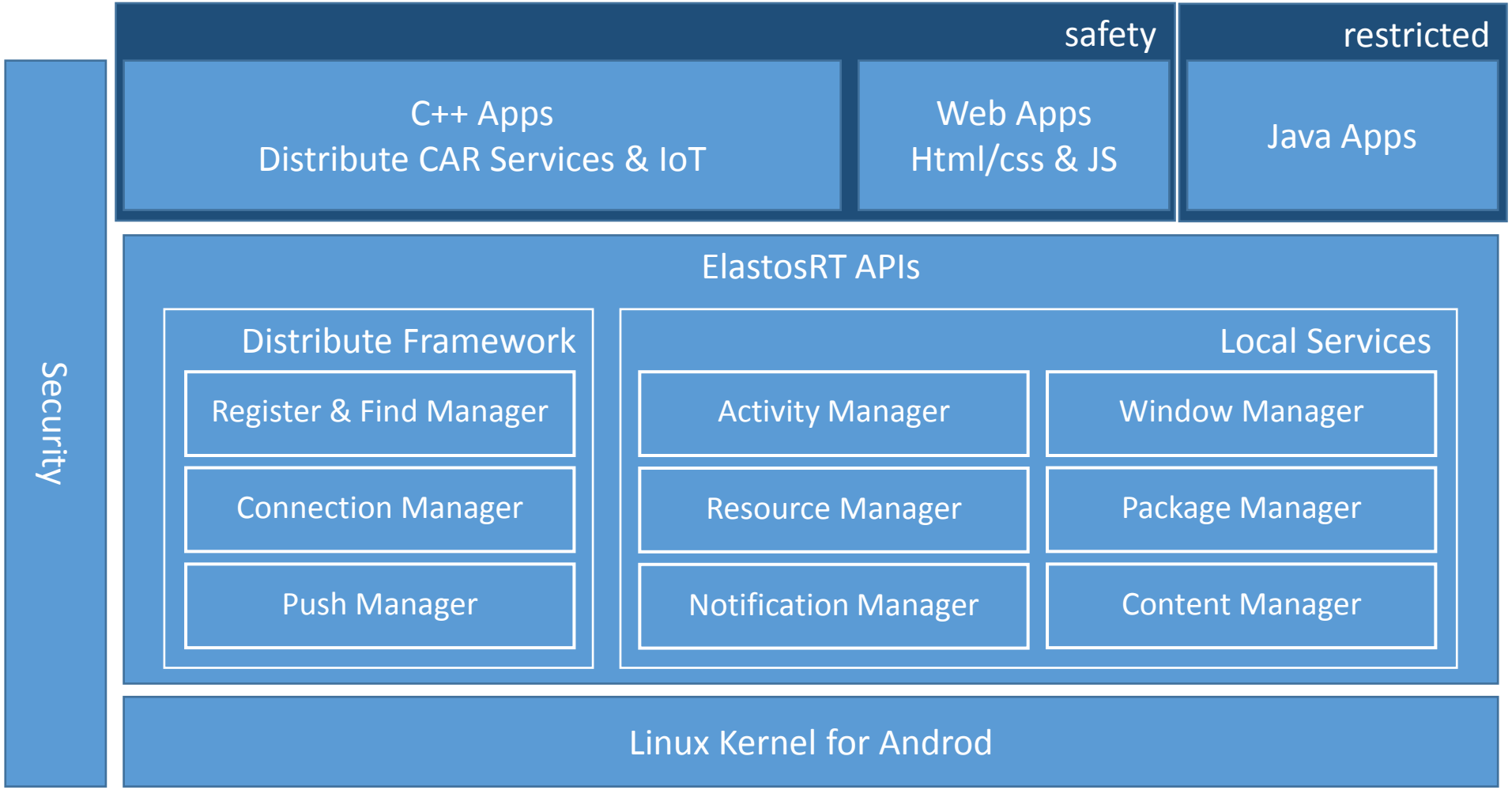
```
Module
{
   interface IEventListener {
      OnEvent(
         [in] Int32 id);
   }

   interface IDemo {
      AddEventHandler(
         [in] IEventListener* listener);

      DoTask();
   }

   class CDemo {
      interface IDemo;
   }
}
```

Demo.car

```
...

ECode CDemo::AddEventHandler(
   /* [in] */ IEventListener* listener)
{
   mListener = listener;
   return NOERROR;
}

ECode CDemo::DoTask()
{
   mListener->OnEvent(9);
   return NOERROR;
}

...
```

CDemo.cpp

Elastos Block Diagram



Elastos Value Propositions

1 Secure

- Elastos Runtime provides end-to-end solutions.

2 Trusted

- Blockchain makes faking identities impossible.

3 Open

- Peer-to-Peer Platform is open source.

4 Rewards

- Eco System needs its own electric currency.

Vision: Turning Digits into Assets

- To build a digital economy for both centralized apps and decentralized apps;
- To issue a crypto token, i.e., ELA, for the digital economy ;
- To sustain growth of the market value of all digital goods and services.

References

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