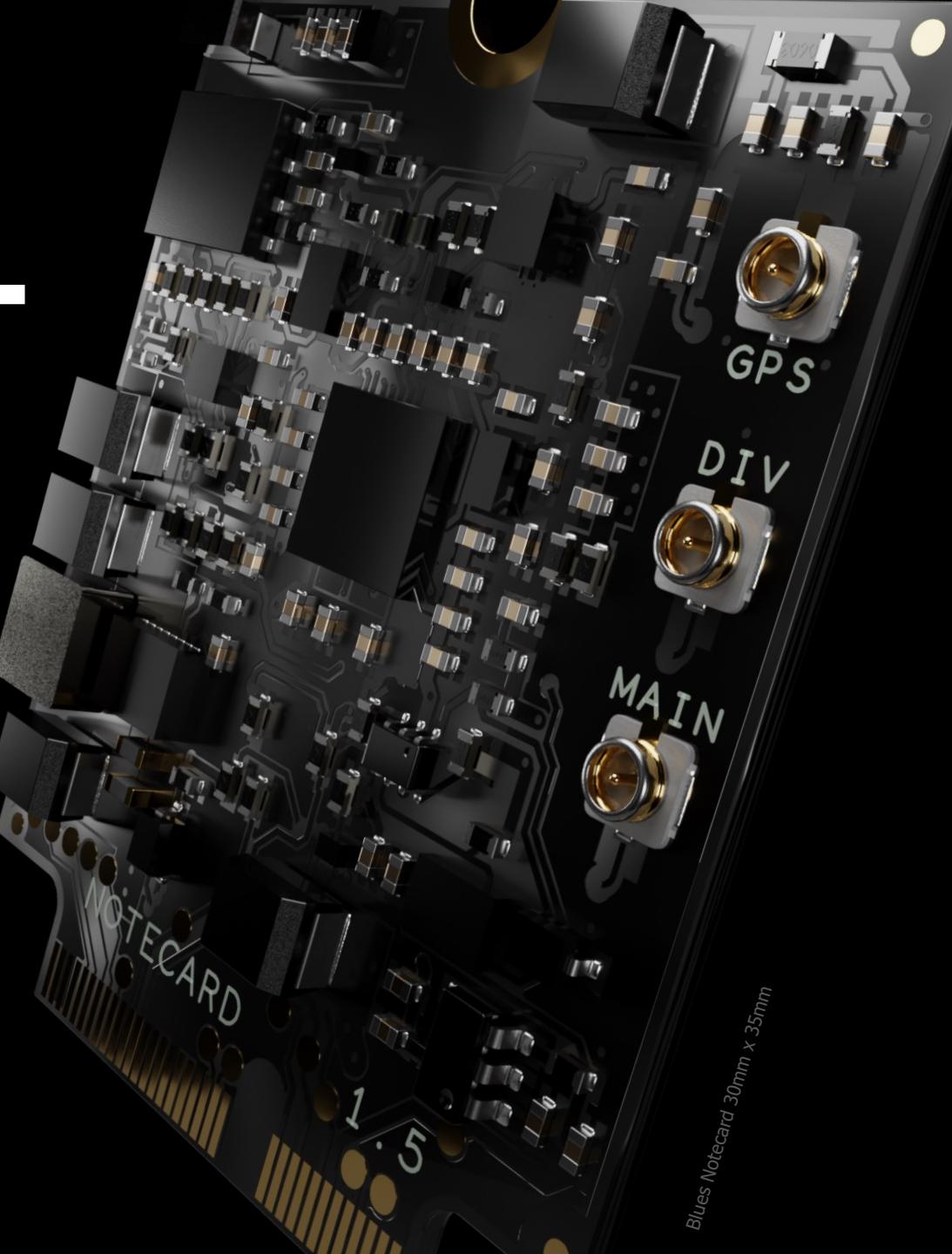


Getting Started with Wireless IoT

Rob Lauer & TJ VanToll

Developer Relations



Blues NoteCard 30mm x 35mm



Rob Lauer

Director of Developer Relations

[@RobLauer](#)



TJ VanToll

Principal Developer Advocate

[@TJVanToll](#)

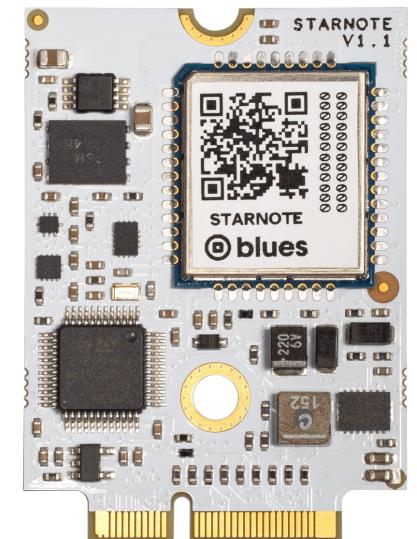
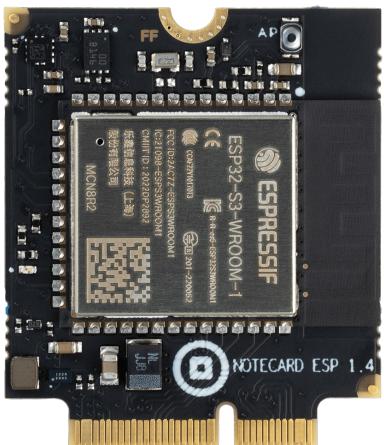
“

Complexity kills. It sucks the life out of developers, it makes products difficult to plan, build, and test.

Ray Ozzie – Blues CEO

Today's Agenda

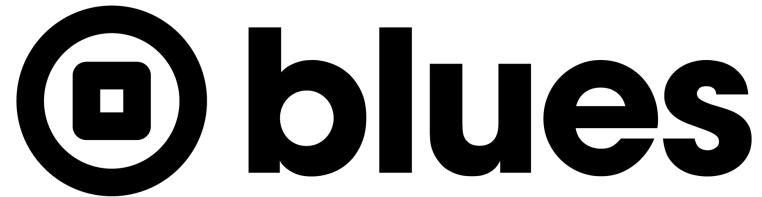
- Intro to the Blues Ecosystem
- Hands-on Demonstration of Wireless IoT





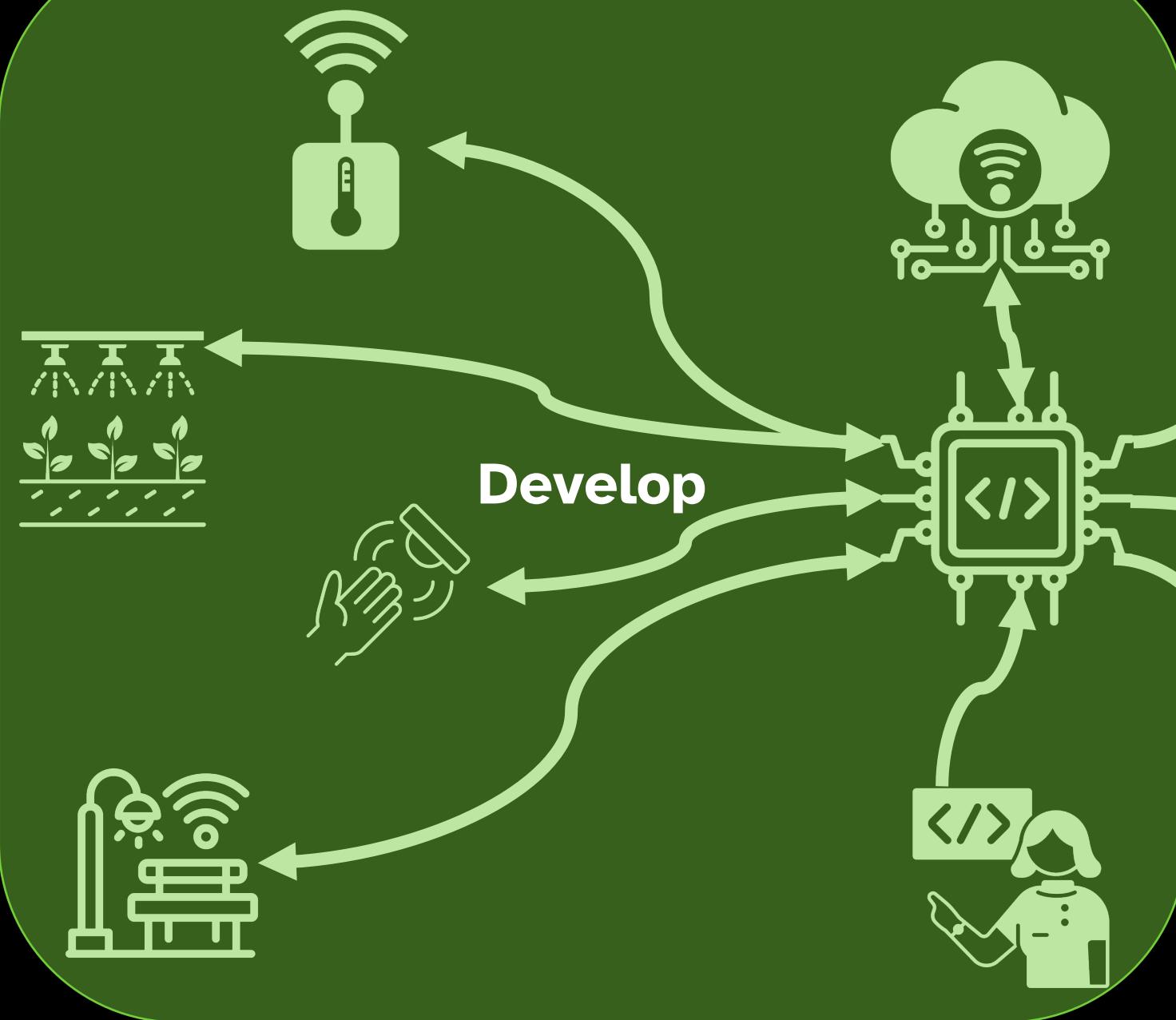


**“Making wireless connectivity easier for
developers and more affordable for all”**

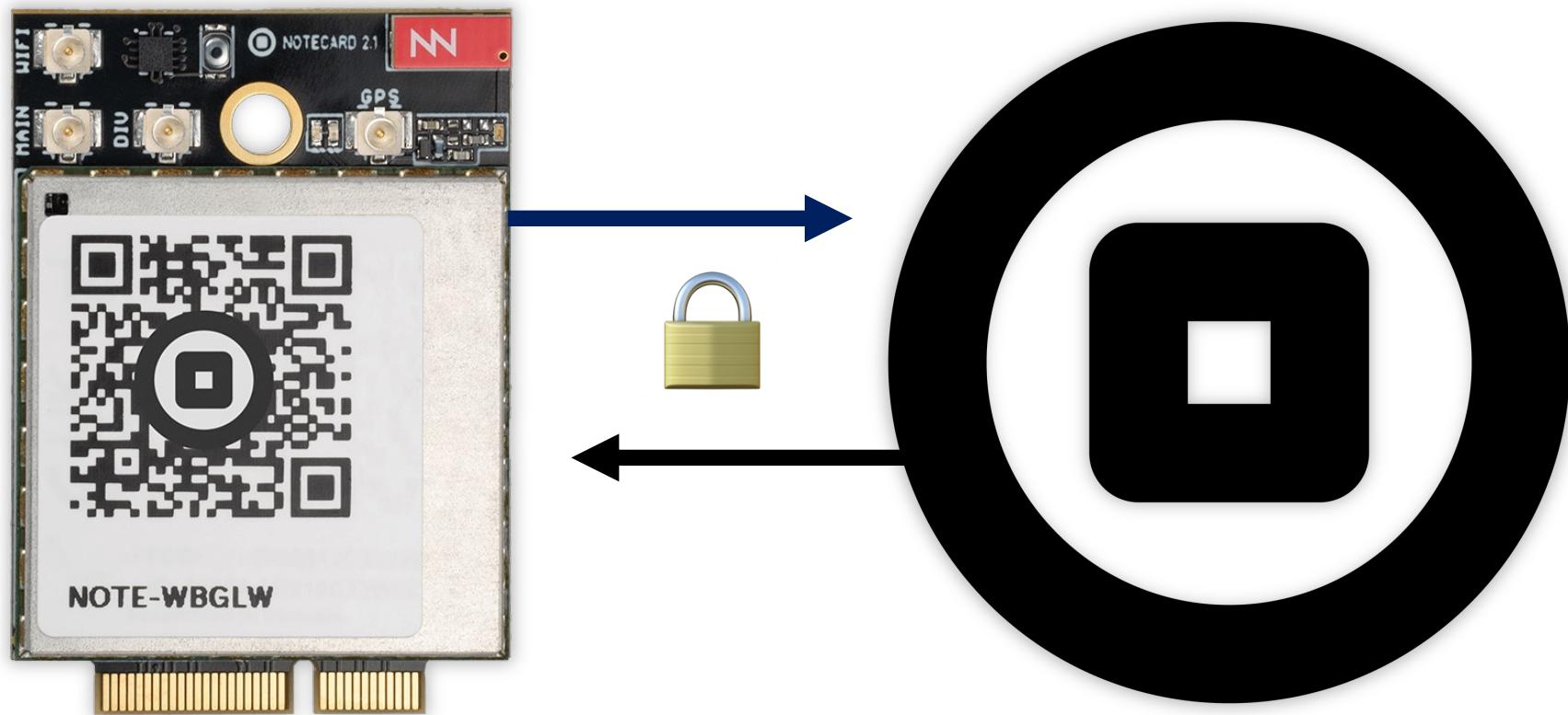


Easy for developers and **affordable** for all.

- 🔒 **Securing** your data from device to cloud
- 🔋 Building zero-config **low-power** hardware
- 💻 Providing an unmatched **developer experience**
- ♻️ **Harmonizing the IoT** with interchangeable RATs



“Device-to-Cloud Data Pump”



The Notecard Options, Simplified



Cellular



Wi-Fi



LoRa



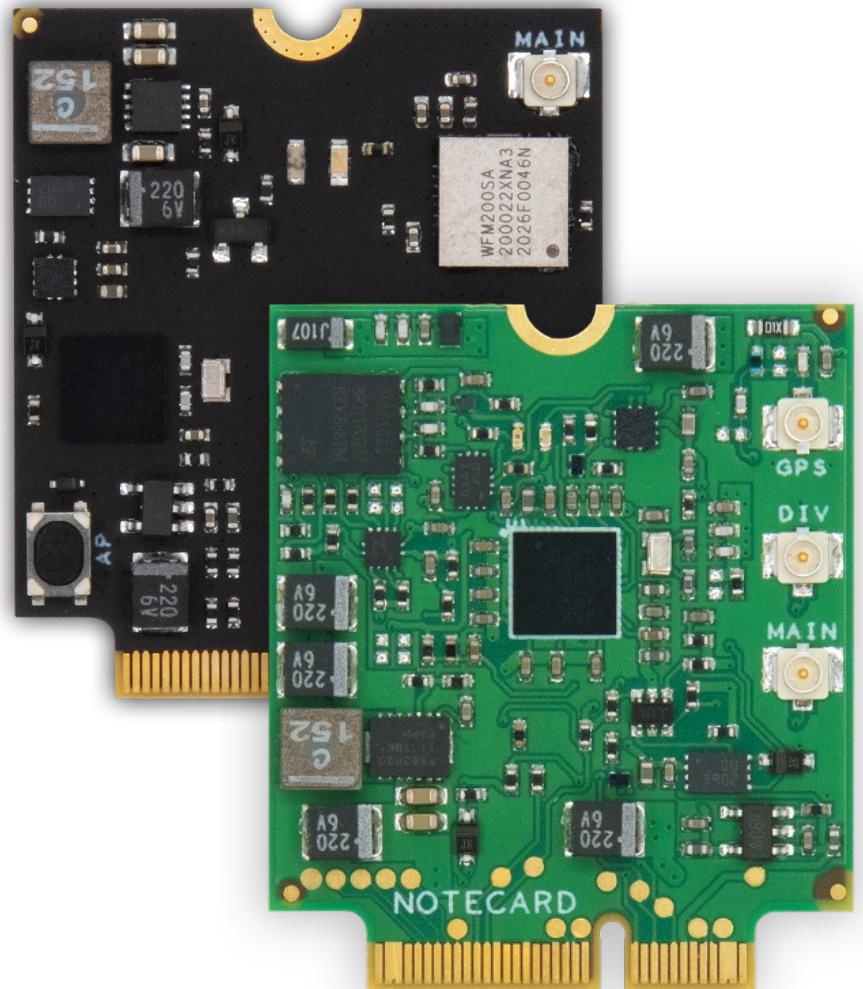
Cell + Wi-Fi



Satellite

Notecard

- Low-power system-on-module
- Global Cellular/GPS, Wi-Fi, LoRa, Sat
- 500MB cell data + 10 years service
- Dual SIM support
- JSON-based API
- Python, Go, Arduino, C/C++, Zephyr
- NB-IoT, LTE-M, LTE Cat-1



Example: *card.location* API

Request

```
{ "req": "card.location" }
```

Response

```
{
  "status": "GPS updated (58 sec, 41dB SNR, 9 sats),
  "mode":    "periodic",
  "lat":     42.577600,
  "lon":     -70.871340,
  "time":    1598554399
}
```

C Example: *card.location* API

Request

```
J *req = NoteNewRequest("card.location");
```

Response

```
J *rsp = NoteRequestResponse(req);
J *status = JGetString(rsp, "status");
J *mode = JGetString(rsp, "mode");
...etc...
```

What don't you need with Blues?

- SIM or Separate Mobile Plan
- AT Commands or Cellular Radio Management
- Custom Security Implementation
- Roll-Your-Own OTA Firmware Updates
- Power Management
- Custom Cloud Integration
- Certifications



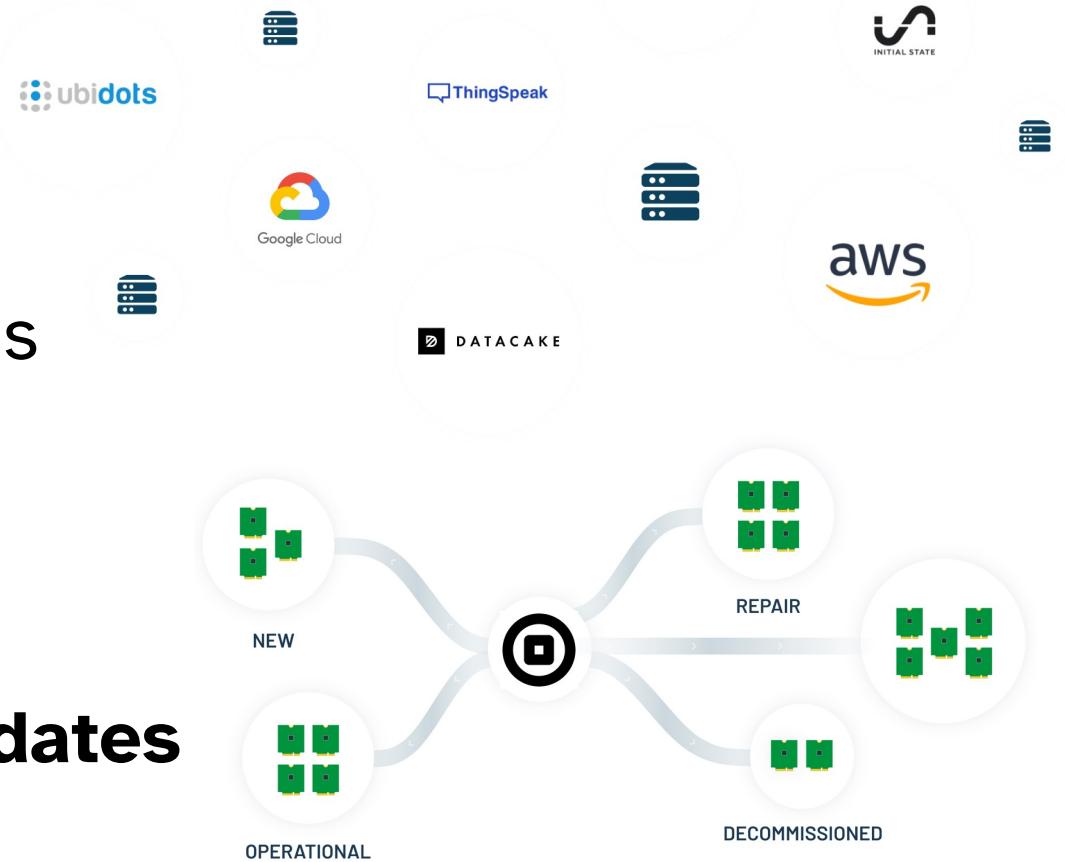
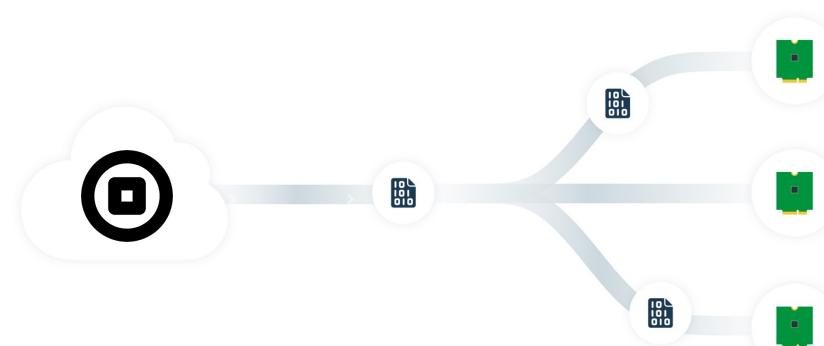
Notecarrier

- Carrier boards for easy prototyping
- Notecarrier for every scenario:
 - **F** - Feather-compatible socket
 - **A** - Any MCU, onboard antennas
 - **B** - Small form factor
 - **Pi** - Raspberry Pi SBC
 - SparkFun MicroMod Cellular Function
 - Blues.ONE from RAKwireless

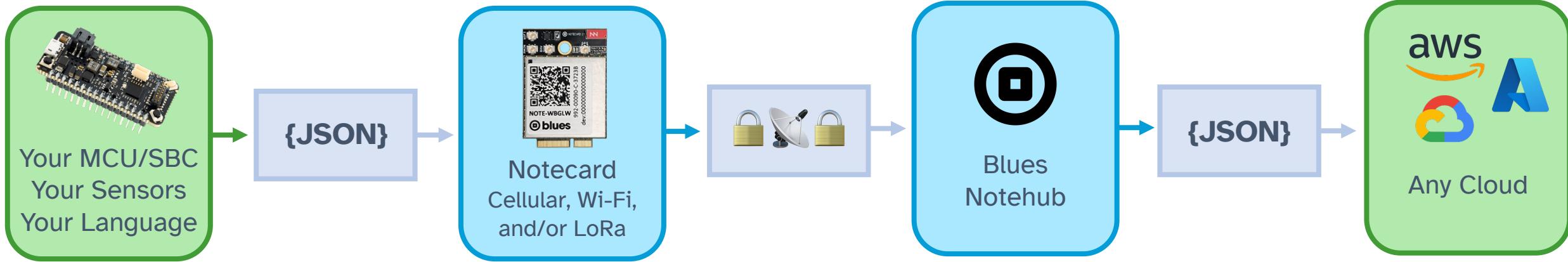


Notehub

- **Secure cloud proxy** for Notecards
- Route data to **any cloud app**
- Manage **fleets** of devices
- OTA MCU/Notecard **firmware updates**
- **Secure** communications



Outbound Communication (from Host to Cloud)



Arduino

C/C++

Python

```
J *req = NoteNewRequest("note.add");
JAddStringToObject(req, "file", "data.qo");

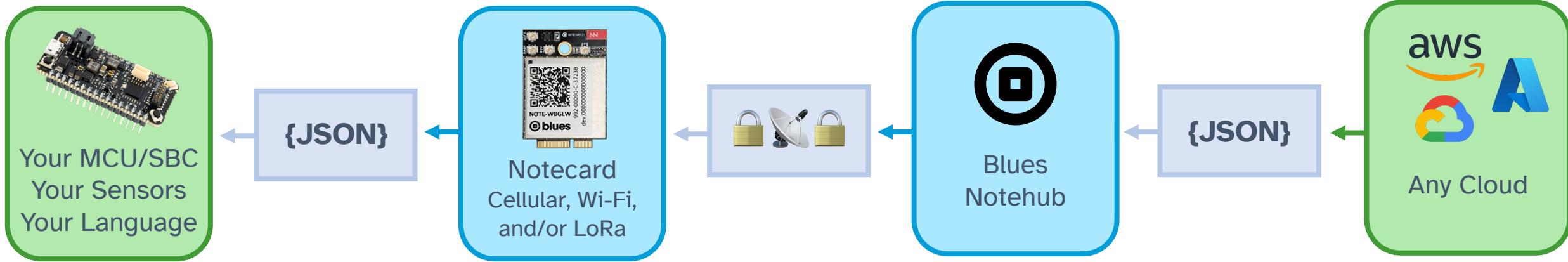
J *body = JCreateObject();
JAddNumberToObject(body, "temp", 27.3);
JAddItemToObject(req, "body", body);

NoteRequest(req);
```

JSON

```
{
  "file": "data.qo",
  "temp": 27.3,
  "when": 1644268443,
  "lat": 42.11,
  "lon": -88.32
  "device": "dev:89347"
}
```

Inbound Communication (from Cloud to Host)



Arduino C/C++ Python

```
J *req = NoteNewRequest("note.get");
JAddStringToObject(req, "file", "data.qi");
JAddBoolToObject(req, "delete", true);

NoteRequest(req);
```

JSON

```
{
  "file": "data.qi",
  "sample_freq": 5,
  "notify": true
}
```



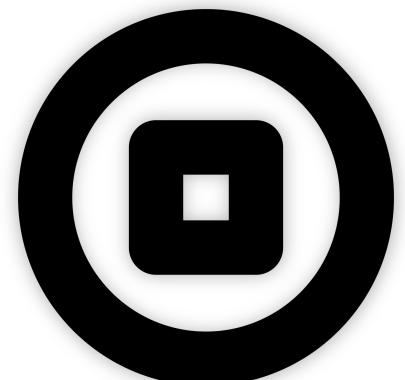
TJ VanToll

Principal Developer Advocate

@TJVanToll

So...what does it all cost?

- **Notecard**
 - \$10 to \$69 USD (most common ~\$50)
 - Cellular includes 500MB and 10 years of service
- **Notehub**
 - 5,000 outbound (Notehub to Cloud) **FREE** each month
 - Beyond 5,000 you only pay for what you use!
 - Starting at 15,000 events for \$11 USD
 - **No SIM fees or required subscriptions**



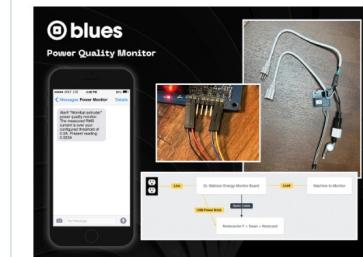
The Most Important Slide!

- Easy (but powerful) **Developer Experience**
- **Same Connector and API** for Cellular, Wi-Fi, LoRa
- **Future-Proof Deployment** (5G, Satellite, and Beyond)
- All Blues Hardware is **Low-Power** by Design
- Guaranteed **10 Years of Cellular Connectivity**



Blues Accelerators

- **40+** Purpose-Built IoT Solutions
- **Free and Open Source** (Firmware and Cloud)



Power Quality Monitoring



Valve Monitor

Monitor and control the



CAN bus Vehicle Monitor

blues.dev/accelerators

Energy Monitoring

SMS Notifications Swan

Wiring Required

Web App Provided

Wiring Required

Zephyr Firmware

Soldering Required

Wiring Required

Thanks! (Time for Q&A)

- 📱 **blues.dev** for Blues developer resources
- 🏁 Get a Blues Starter Kit @ **shop.blues.com**



Rob Lauer
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TJ VanToll
Principal Developer Advocate
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