

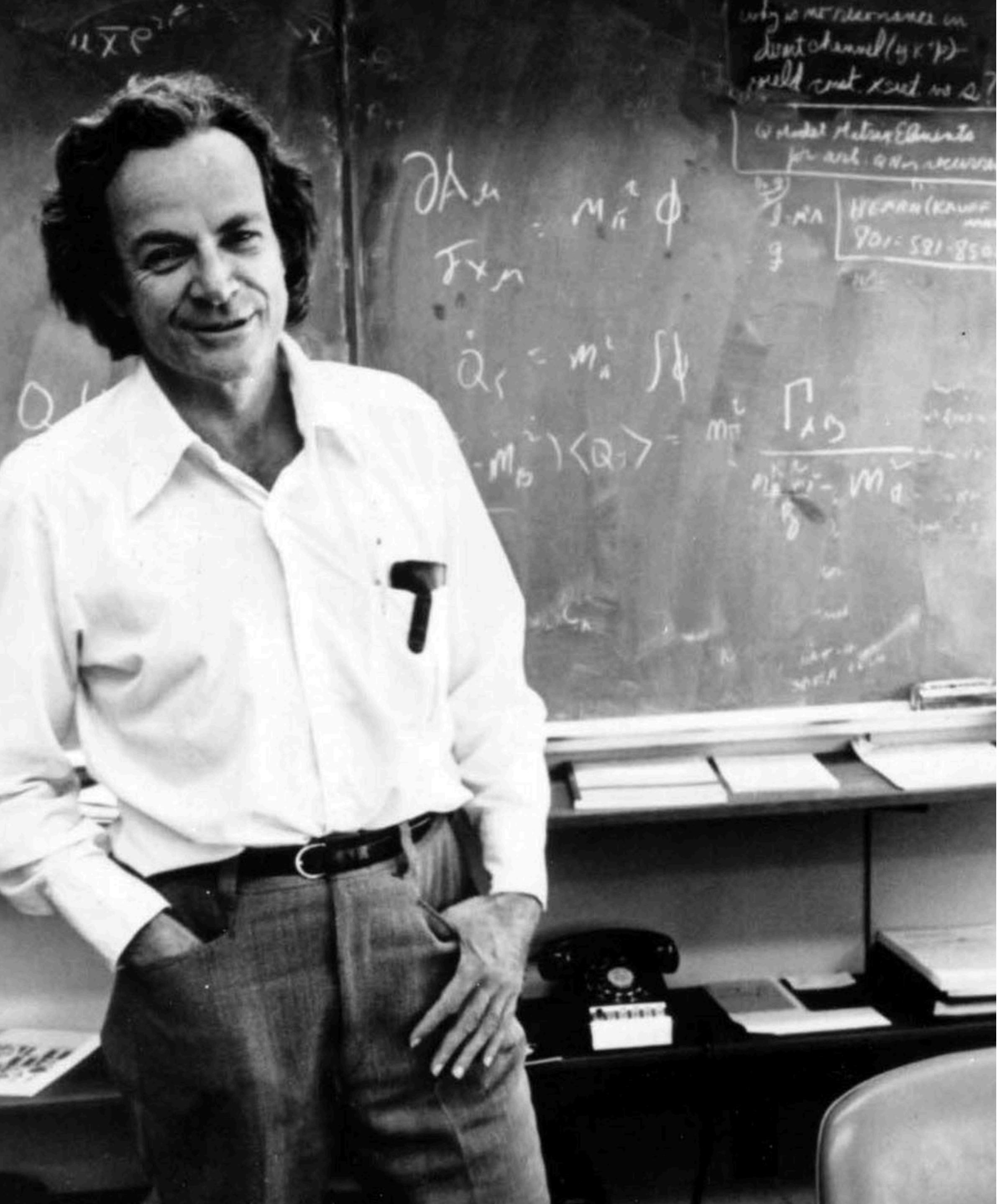
Watching the World Burn:

API Testing as an Afterthought

With  APIFORTRESS

Patrick Poulin, CEO





Why Are We Asking the Questions We Ask With Testing?

← Richard Feynman
1918-1988
Theoretical Physicist

How Does Feynman Apply?

**“Does the
software work?”**

**How are we asking this
question and more
importantly, why?**

Unit Testing

A Real Example

```
def calculate_final_price(price, discount):
    if discount=='30%':
        return price-(price*0.3)
    if discount=='50%':
        return price/2
    return price
```



Manual Front End Testing

API Testing

Request: POST /cart/add

```
{  
  "productId": 511,  
  "name": "Smarty pants",  
  "quantity": 1,  
  "price": 5.99,  
  "discount": "30%"  
}
```

Response:

```
{  
  "transaction": "ok",  
  "subtotal": 4.193  
}
```

Request: POST /cart/add

```
{  
  "productId": 511,  
  "name": "Smarty pants",  
  "quantity": 1,  
  "price": 1.99,  
  "discount": "50%"  
}
```

Response:

```
{  
  "transaction": "ok",  
  "subtotal": 0.995  
}
```

Takeaways

We are not simply testing communication.

APIs are complex beasts and can expose a huge volume of internal functionality.

1.1 Billion Identities Exposed in India, and It's Not a Hack

```
{  
  "company_data": [{"company_name": "IOCL", "status": "https://spandan.indianoil.co.in/transparency/images/greenicon.jpg", "distributor_name": "SRINGERI ENTERPRISES", "consumer_no": "37", "Seed-with": "https://spandan.indianoil.co.in/transparency/images/greenicon.jpg", "Bank_seeding": "https://spandan.indianoil.co.in/transparency/images/greenicon.jpg", "Bank_Status": "26-11-2015", "Bank_Name": "RAJASTHAN MARUDARA GRAMIN BANK", "Bank_remarks": ""}, {"company_name": "IOCL", "status": "https://spandan.indianoil.co.in/transparency/images/greenicon.jpg", "distributor_name": "GRAMIN VITRAK", "consumer_no": "390", "Seed-with": "https://spandan.indianoil.co.in/transparency/images/greenicon.jpg", "Bank_seeding": "https://spandan.indianoil.co.in/transparency/images/greenicon.jpg", "Bank_Status": "29-05-2017", "Bank_Name": "RAJASTHAN MARUDARA GRAMIN BANK", "Bank_remarks": ""}]}
```



APIFORTRESS

The US Postal Service Exposed
Data of 60 Million Users

A Lack of Functional Testing to Blame

A Workflow Suggestion

1. API devs write tests for their APIs
2. Commit to Git
3. QAs take their tests as a start and build:
 - Integration Tests
 - Data-Driven Tests
4. Incorporate all into CI flow

Best Practice: Basics

- Test Endpoints
- Test Everything
 - (including Response Code & Content-Type)
- Test Objects

Best Practice: Advanced

- Variabilize for Test Reuse
- Confirm Business Logic & Datatypes
- Use Dynamic Data
- Integration / End-to-End Test
- Confirm Response Matches Request

Key Takeaways

Test Everything

(headers, objects, datatypes)

Test Smart

(business logic, dynamic data sources, integration tests)

Test Constantly

(CI/CD & Monitoring)

Standardize

(Devs and QAs)

Key Takeaways When Choosing a Platform

- Which Team(s) Will Do the Work?
- Reporting Needs
- Existing Systems Integrations
- Cloud vs On-Premises



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