Understanding Core Concepts of Cypress

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Module Overview

Learn about conditional testing and how to avoid common pitfalls

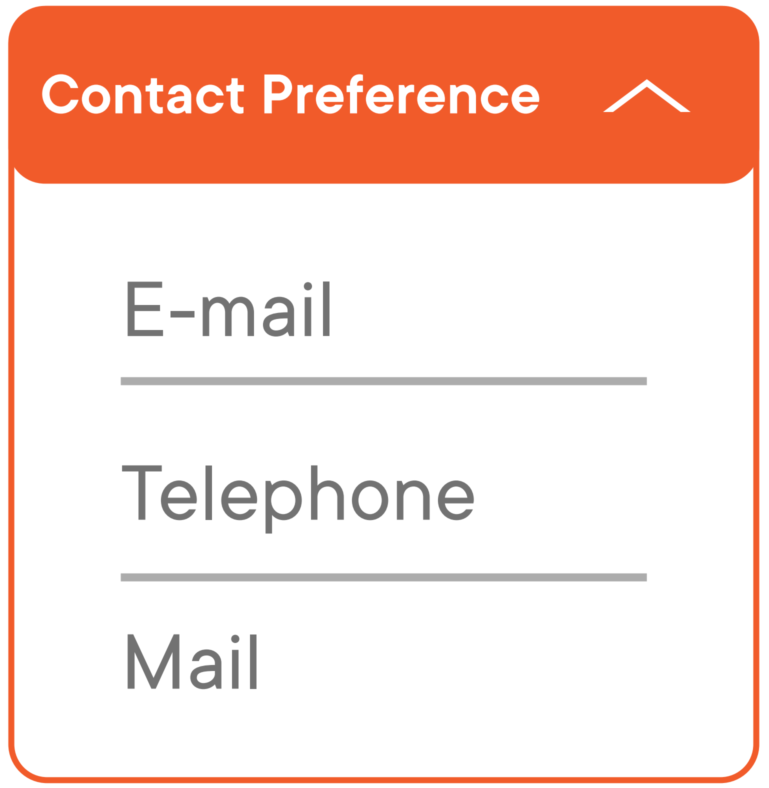
Explore the asynchronous nature of Cypress

Get to know Cypress's built-in retry-ability

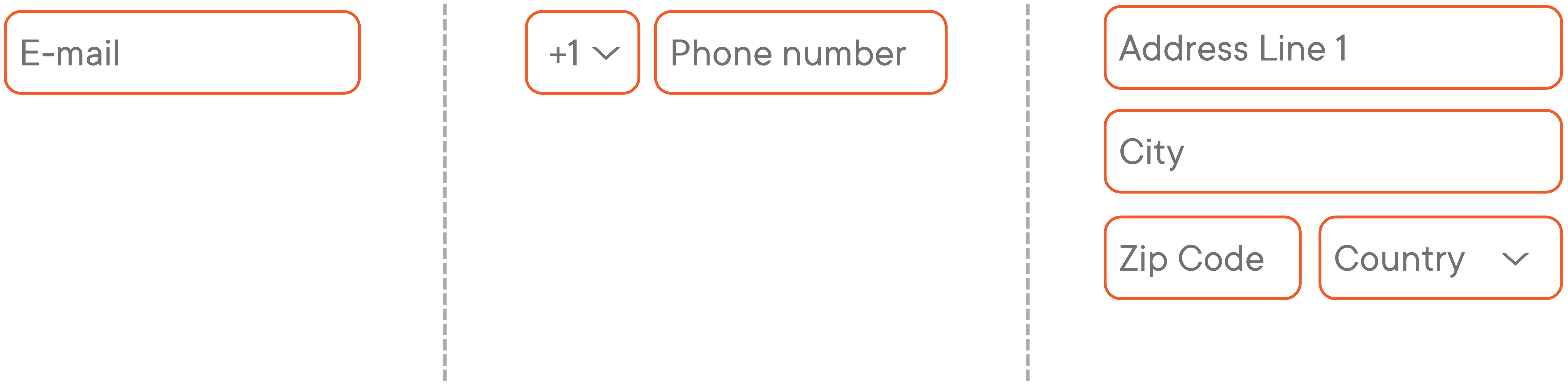
Conditional Testing

Conditional Testing

```
IF (<Condition>)
    THEN <Statements>
    ELSE <Statements>
ENDIF
```



```
if (contactPreference === "E-mail") {
   ...
} else if (contactPreference === "Telephone") {
   ...
} else if (contactPreference === "Mail") {
   ...
}
```



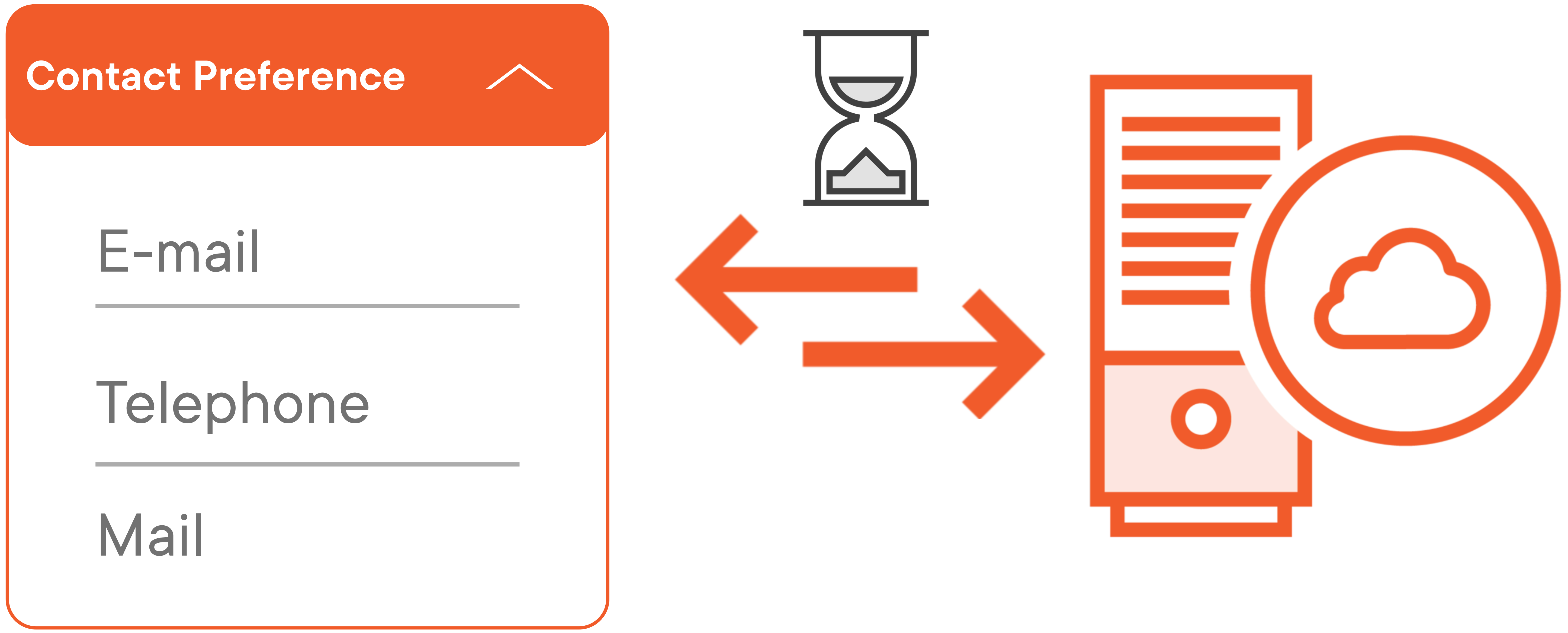
Is It Possible to Make Conditional Tests Consistently?

Conditional testing can only be used when the state of the application has stabilized.

No pending network requests

No timeouts and intervals

No async/await code


Contact Preference
E-mail
Telephone
Mail

In highly-dynamic applications, content updates are based on events that the user usually cannot control.

Strategies to Overcome Non-deterministic Behavior

- **Remove the need to do conditional testing**
- **Make application behave deterministically**
- **Check other sources of truth (like server or database)**
- **Embed data into other places you could read off**
- **Add data to the DOM that you can read off to know how to proceed**

Conditional testing is a test design consideration.

Mixing Synchronous and Asynchronous Code

Cypress is built to match the asynchronous nature of modern web applications.

```
cy.get('button.primary').click();
```

Cypress commands do not return their subjects. They yield them.

```
it('test', () => {
    let username = undefined;

    cy.visit('http://localhost:4200');
    cy.get('#username').then(($el) => {
        username = $el.text();
    });

   if (username) {
     cy.contains(username).click();
   } else {
     cy.contains('My Profile').click();
   }
});
```

```
it('test', () => {
    let username = undefined;

    cy.visit('http://localhost:4200');
    cy.get('#username').then(($el) => {
        username = $el.text();
       if (username) {
           cy.contains(username).click();
       } else {
           cy.contains('My Profile').click();
       }
    });
  });
```

Demo

Mixing synchronous and asynchronous code

Exploring Retry-ability

```
cy.get('.main-list li') // command
.should('have.length', 3) // assertion
```

The retry-ability allows tests to complete each command without hard-coding waits.

Cypress only retries commands that query the DOM.

`.get()` `.find()` `.contains()`

Commands that are not retried are the ones that could potentially change the state of the application (e.g., click).

Changing the Timeout

The default timeout can be changed on a command level or globally.

cypress.json

```json
{
    "defaultCommandTimeout": 0
}
```

adventure.spec.js

```javascript
cy.contains('More Details')
    .click({ timeout: 0 });
```

```
cy.get('ul li') // yields only one <li>
     .find('p') // retries multiple times on a single <li>
     .should('contain', 'Filtered by') // never succeeds
```

Demo

Exploring retry-ability

Module Summary

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Cypress commands are asynchronous

Conditional testing requires a stable source of truth

Cypress retries some commands by default, so there is no need for hard-coding waits

Up Next:
Leveraging App Actions and Page Objects