It's time to ditch the client-side tag manager

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Shell Recharge Solutions

Tag Managers are like closets

Image Source: pexels.com | Author: Ron Lach

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Messy closet symptoms

✓ Lost overview

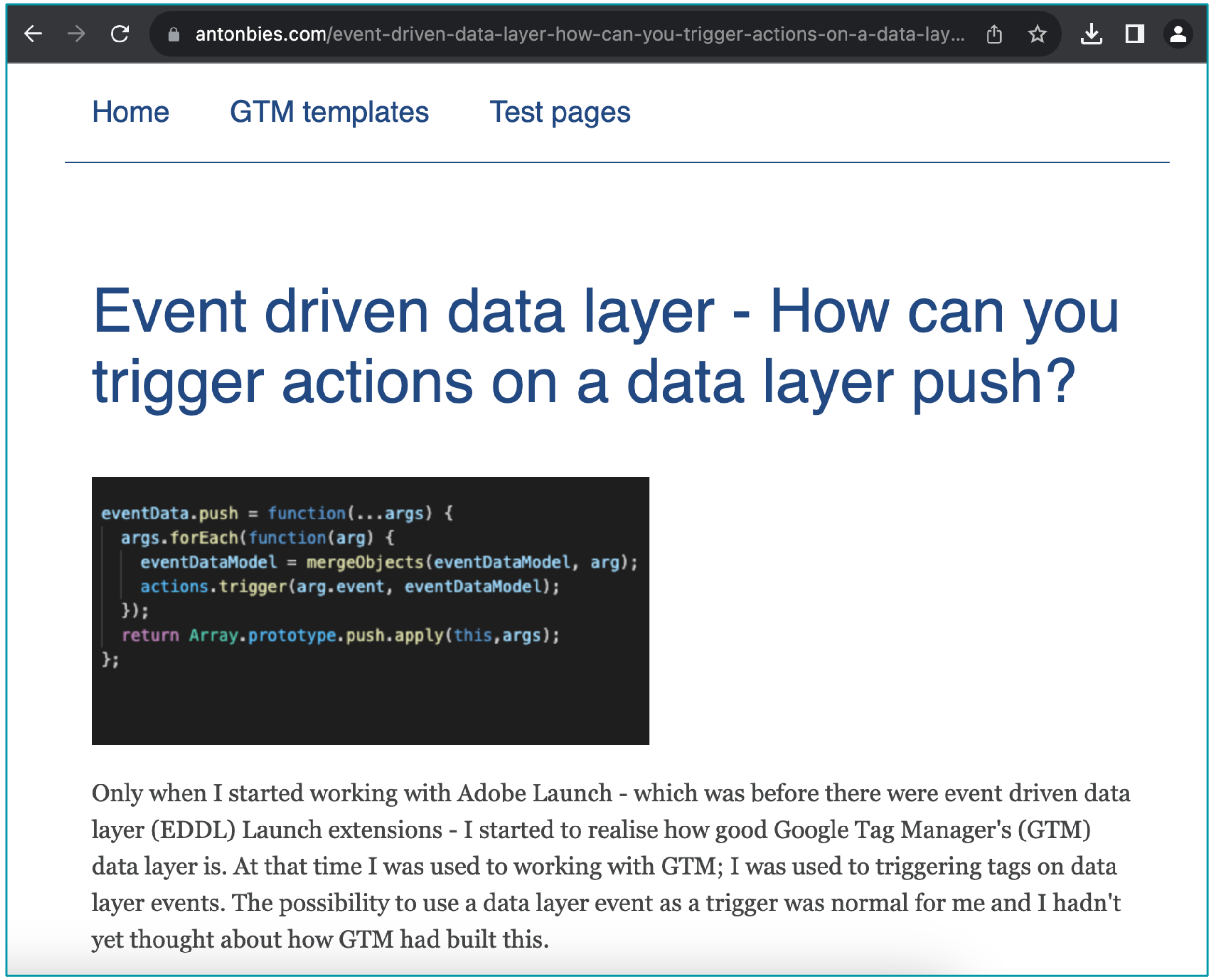
✓ Large container size

✓ Custom JavaScript tags

The opportunity

Tag Manager

The inspiration



antonbies.com/event-driven-data-layer-how-can-you-trigger-actions-on-a-data-lay...

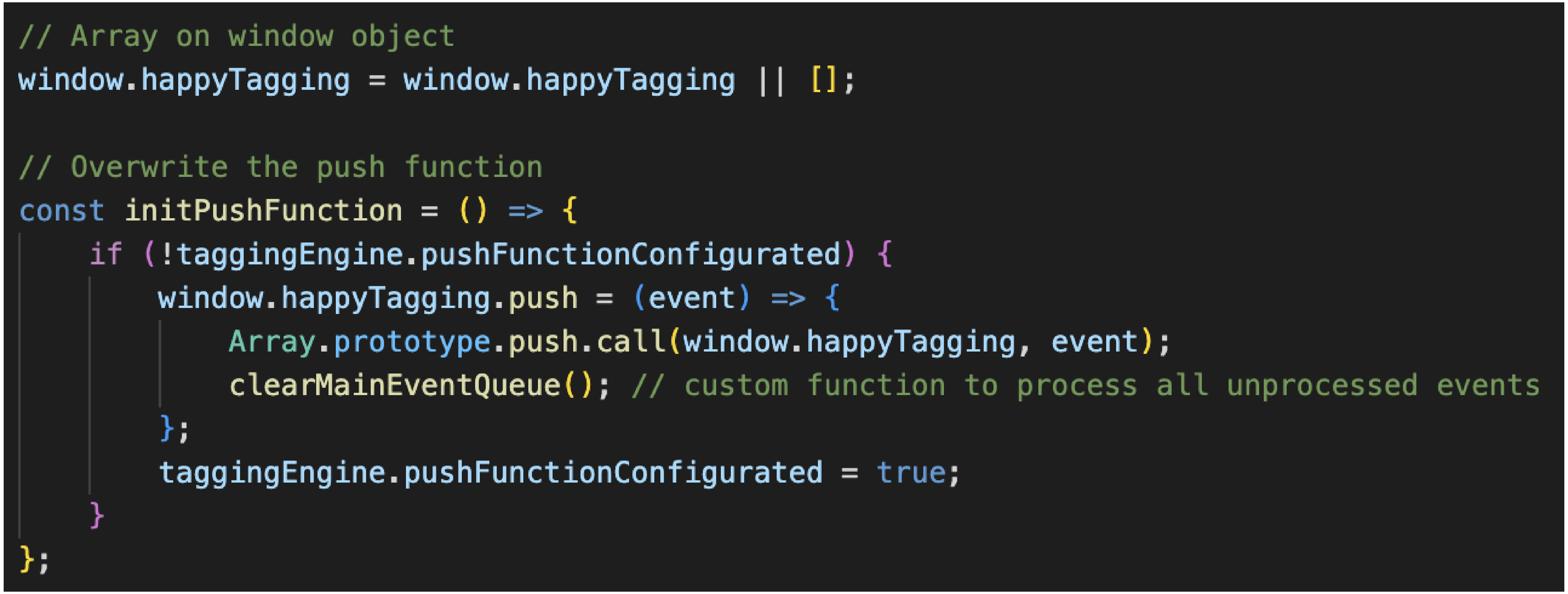
Event driven data layer - How can you trigger actions on a data layer push?

```
eventData.push = function(...args) {
  args.forEach(function(arg) {
    eventDataModel = mergeObjects(eventDataModel, arg);
    actions.trigger(arg.event, eventDataModel);
  });
  return Array.prototype.push.apply(this,args);
};
```

Only when I started working with Adobe Launch - which was before there were event driven data layer (EDDL) Launch extensions - I started to realise how good Google Tag Manager's (GTM) data layer is. At that time I was used to working with GTM; I was used to triggering tags on data layer events. The possibility to use a data layer event as a trigger was normal for me and I hadn't yet thought about how GTM had built this.

Source: https://antonbies.com/event-driven-data-layer-how-can-you-trigger-actions-on-a-data-layer-push/

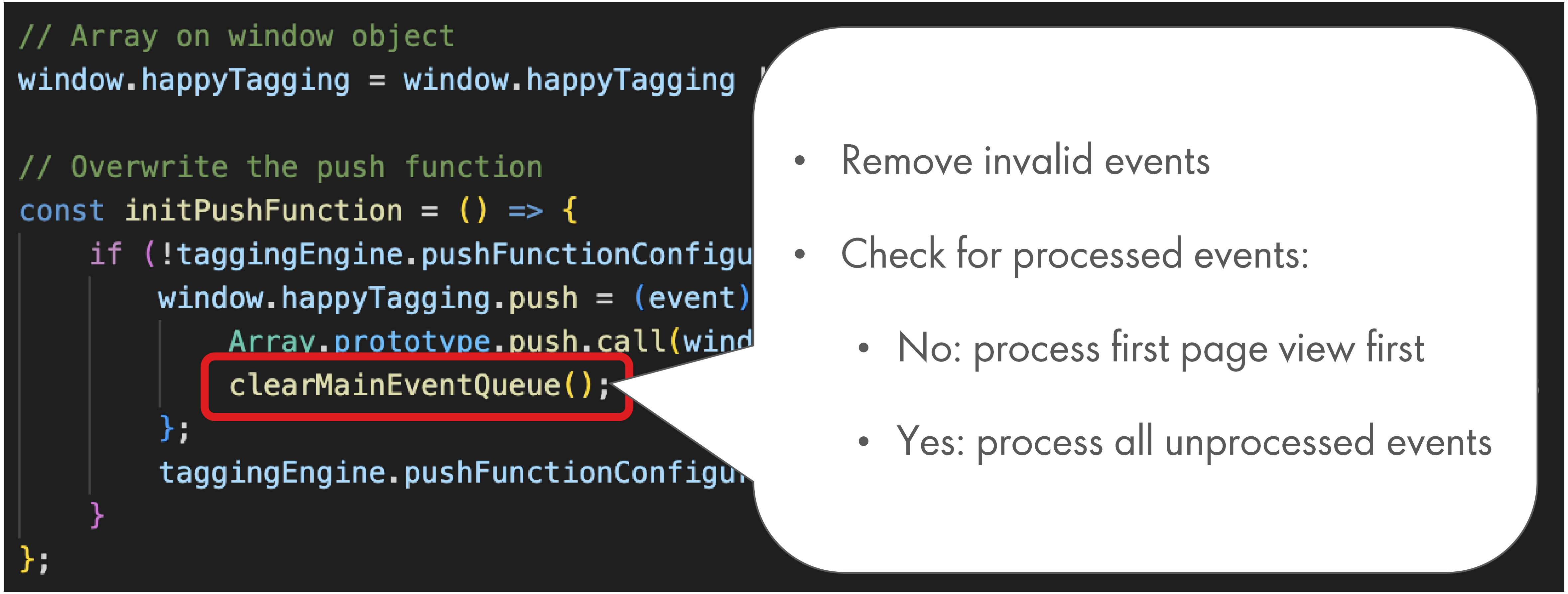
Overwriting the push function



```
// Array on window object
window.happyTagging = window.happyTagging || [];

// Overwrite the push function
const initPushFunction = () => {
    if (!taggingEngine.pushFunctionConfigurated) {
        window.happyTagging.push = (event) => {
            Array.prototype.push.call(window.happyTagging, event);
            clearMainEventQueue(); // custom function to process all unprocessed events
        };
        taggingEngine.pushFunctionConfigurated = true;
    }
};
```

Clearing the event queue



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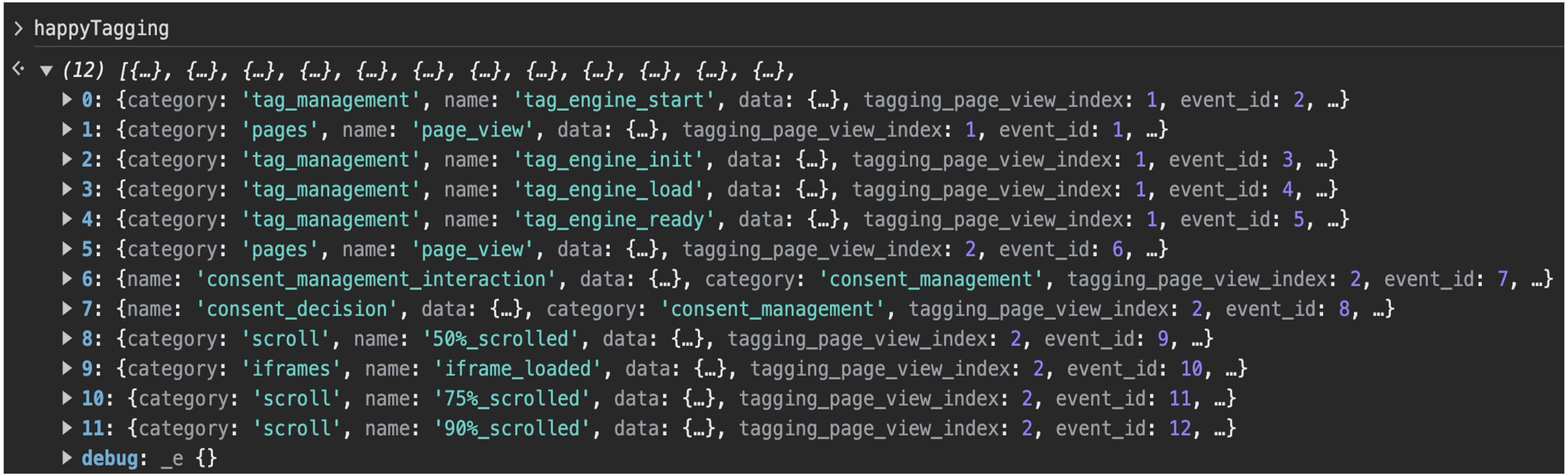
            clearMainEventQueue();
        };
        taggingEngine.pushFunctionConfigu
    }
};
```

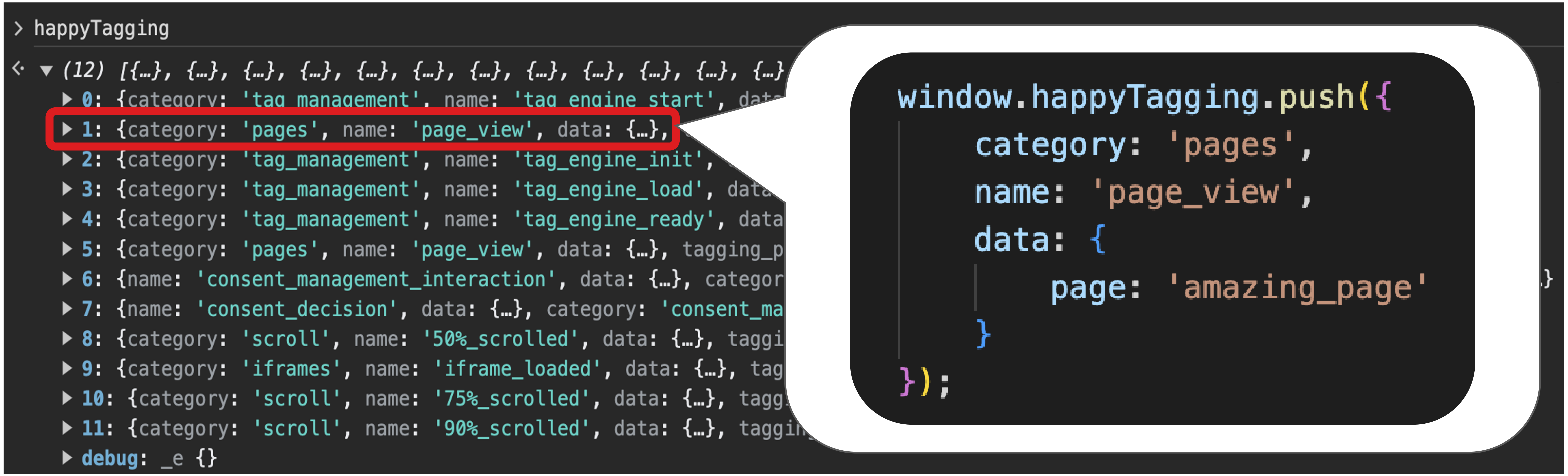
- Remove invalid events
- Check for processed events:
  - No: process first page view first
  - Yes: process all unprocessed events

The event queue



```
> happyTagging
<· ▼ (12) [{…}, {…}, {…}, {…}, {…}, {…}, {…}, {…}, {…}, {…}, {…}, {…},
    ▶ 0: {category: 'tag_management', name: 'tag_engine_start', data: {…}, tagging_page_view_index: 1, event_id: 2, …}
    ▶ 1: {category: 'pages', name: 'page_view', data: {…}, tagging_page_view_index: 1, event_id: 1, …}
    ▶ 2: {category: 'tag_management', name: 'tag_engine_init', data: {…}, tagging_page_view_index: 1, event_id: 3, …}
    ▶ 3: {category: 'tag_management', name: 'tag_engine_load', data: {…}, tagging_page_view_index: 1, event_id: 4, …}
    ▶ 4: {category: 'tag_management', name: 'tag_engine_ready', data: {…}, tagging_page_view_index: 1, event_id: 5, …}
    ▶ 5: {category: 'pages', name: 'page_view', data: {…}, tagging_page_view_index: 2, event_id: 6, …}
    ▶ 6: {name: 'consent_management_interaction', data: {…}, category: 'consent_management', tagging_page_view_index: 2, event_id: 7, …}
    ▶ 7: {name: 'consent_decision', data: {…}, category: 'consent_management', tagging_page_view_index: 2, event_id: 8, …}
    ▶ 8: {category: 'scroll', name: '50%_scrolled', data: {…}, tagging_page_view_index: 2, event_id: 9, …}
    ▶ 9: {category: 'iframes', name: 'iframe_loaded', data: {…}, tagging_page_view_index: 2, event_id: 10, …}
    ▶ 10: {category: 'scroll', name: '75%_scrolled', data: {…}, tagging_page_view_index: 2, event_id: 11, …}
    ▶ 11: {category: 'scroll', name: '90%_scrolled', data: {…}, tagging_page_view_index: 2, event_id: 12, …}
    ▶ debug: _e {}
```

Adding events to the queue



```
> happyTagging
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   ▶ 5: {category: 'pages', name: 'page_view', data: {…}, tagging_p
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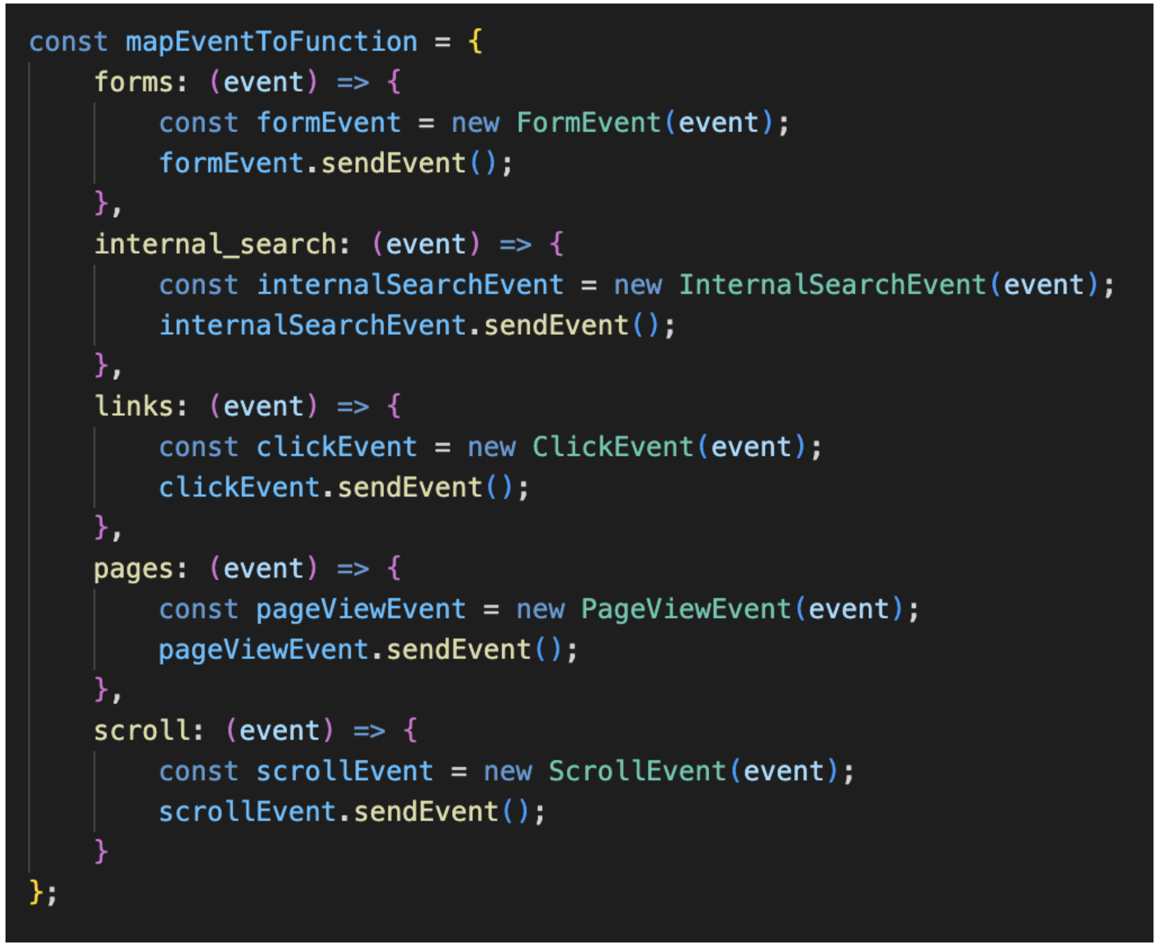
   ▶ debug: _e {}
```

```
window.happyTagging.push({
    category: 'pages',
    name: 'page_view',
    data: {
        page: 'amazing_page'
    }
});
```

Event processing

- Add: Event ID
- Add: Tagging Page View Index
- Enrich with page properties
- Dispatch JS event

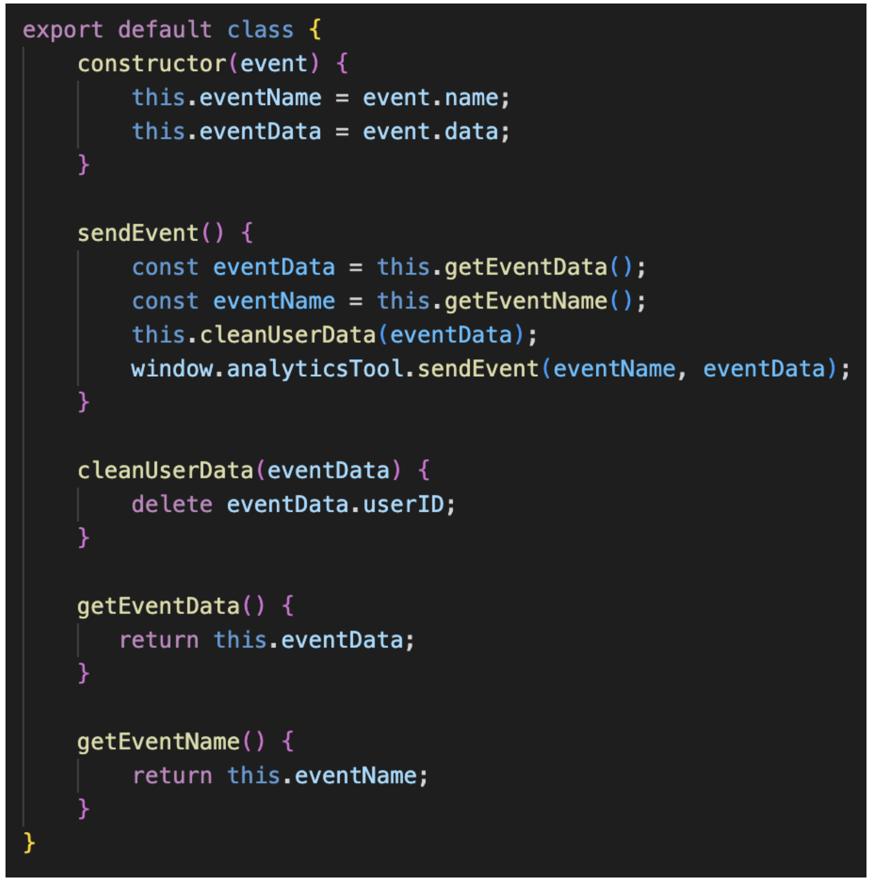
Lookup objects to keep things clear and functionally grouped...



```
const mapEventToFunction = {
    forms: (event) => {
        const formEvent = new FormEvent(event);
        formEvent.sendEvent();
    },
    internal_search: (event) => {
        const internalSearchEvent = new InternalSearchEvent(event);
        internalSearchEvent.sendEvent();
    },
    links: (event) => {
        const clickEvent = new ClickEvent(event);
        clickEvent.sendEvent();
    },
    pages: (event) => {
        const pageViewEvent = new PageViewEvent(event);
        pageViewEvent.sendEvent();
    },
    scroll: (event) => {
        const scrollEvent = new ScrollEvent(event);
        scrollEvent.sendEvent();
    }
};
```

… and process events through class-based functions

Generic



```
export default class {
    constructor(event) {
        this.eventName = event.name;
        this.eventData = event.data;
    }

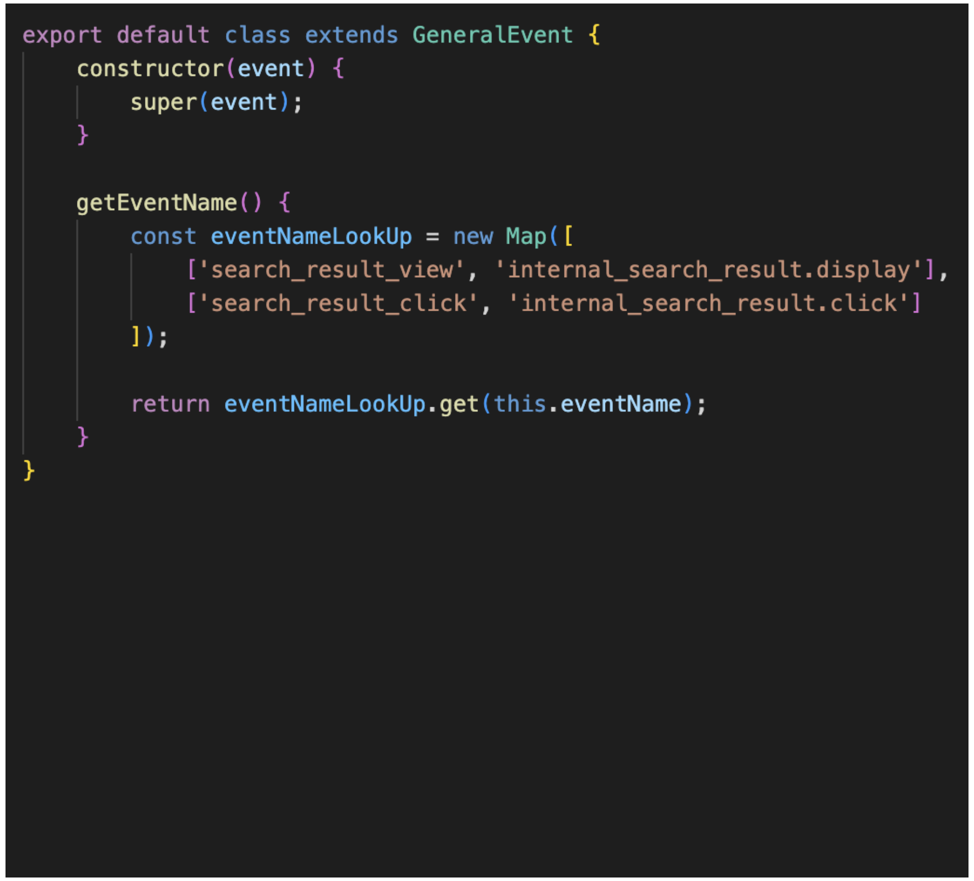
    sendEvent() {
        const eventData = this.getEventData();
        const eventName = this.getEventName();
        this.cleanUserData(eventData);
        window.analyticsTool.sendEvent(eventName, eventData);
    }

    cleanUserData(eventData) {
        delete eventData.userID;
    }

    getEventData() {
       return this.eventData;
    }

    getEventName() {
        return this.eventName;
    }
}
```

Specific to internal search

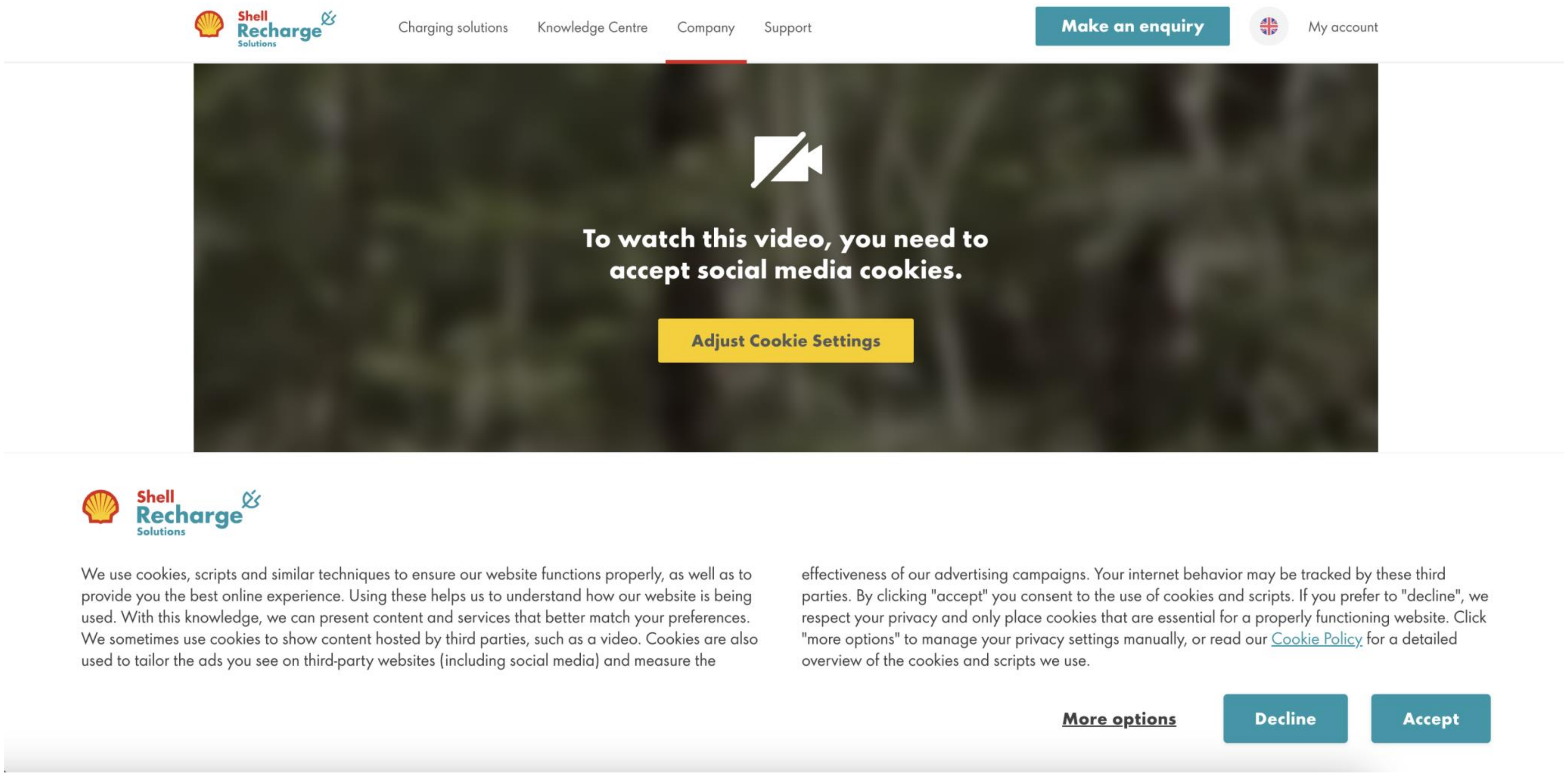


```
export default class extends GeneralEvent {
    constructor(event) {
        super(event);
    }

    getEventName() {
        const eventNameLookUp = new Map([
            ['search_result_view', 'internal_search_result.display'],
            ['search_result_click', 'internal_search_result.click']
        ]);

        return eventNameLookUp.get(this.eventName);
    }
}
```

Easier integrations as triggers are not confined in the Tag Manager



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Not all scripts need to be loaded …at the same time

- Only load desired scripts
- 2 requests to load all scripts:
  - Load base scripts
  - Load optional scripts

What do you need to get started

- ✓ Method to inject scripts
- ✓ CDN / file hosting
- ✓ Code Repository e.g., GitHub
  - ✓ Version management
  - ✓ Approval flows
  - ✓ Code transpilation & bundling
  - ✓ Dependency scanning

Pro’s and Con’s

Pro’s

- Vendor agnostic
- Scalable
- Tailored
- Integrate with test automation & dependency scanning

Con’s

- Tech & JS heavy
- Solution availability
- Maintenance
- Too complex for straightforward implementations

Thank you

Shell Recharge Solutions