TECHCOMSECURITIES BeSpoke

Which way we choose to build effective digital platform

Techcom Securities case study

2018

73%

REVENUE
1,872 billion

67%

PROFIT BEFORE TAX
1,532 billion

55%

TOTAL ASSETS
4,351 billion

Best DCM House in Vietnam 2018

COUNTRY AWARDS FOR ACHIEVEMENT 2018
FinanceAsia

Best Domestic Bond House in Vietnam 2018

ASSET ASIAN AWARDS 2018
THE Asset
TRIPLE A

Total Volume of Corporate Bond Advisory:
61,992 billion

Occupy **40%** market share

iBOND

Total Sales:
59,707 billion

Number of customer:
17,805

HOSE bond brokage share market:
81.7%

Distributed at:
288 TCB branches in 45 provinces nationwide

TCBF

in **No 1** Vietnam by NAV (Net Asset Value)

NAV
6,632 billion

37% of domestic open-ended fund market share

Đặt lệnh cổ phiếu

Lệnh thường | Mua | Bán

Nhập mã cổ phiếu

Tiểu khoản: Thường

Sức mua (VND): -5,351

Loại lệnh

Giá (x1000): 0

Số lượng (Tối đa 0): 0

Tổng tiền (VND): ---

ĐẶT MUA

ACB - HNX - Tỷ lệ ký quỹ: 50%

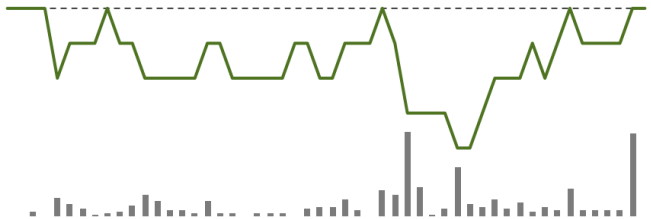
Ngân hàng Thương mại CP Á Châu Xem thêm

Trần	Sàn	Tham chiếu
32.50	26.70	29.60
Thị giá	**Cao nhất**	**Thấp nhất**
29.60	32.50	29.20
Room NN	**Room NN CL**	**Tổng KL**
0	0	1,318,900

Dư mua 45.53% — Dư bán 54.47%

BÁN	29.50 29.60 21,60 33,10	MUA
BÁN	29.40 29.70 37,50 22,90	MUA
BÁN	29.30 29.80 45,80 69,50	MUA

Lịch sử khớp lệnh



Các cổ phiếu liên quan

SHB	2,358,300	7.40	---	---%
LPB	363,600	9.50	---	---%
VIB	72,600	18.30	▲ 0.2	1.1%
BAB	7,300	20.50	▲ 0.1	0.5%
KLB	3,400	9.90	▲ 0.1	1.0%

Sổ lệnh cổ phiếu thường

Tiểu khoản: Thường

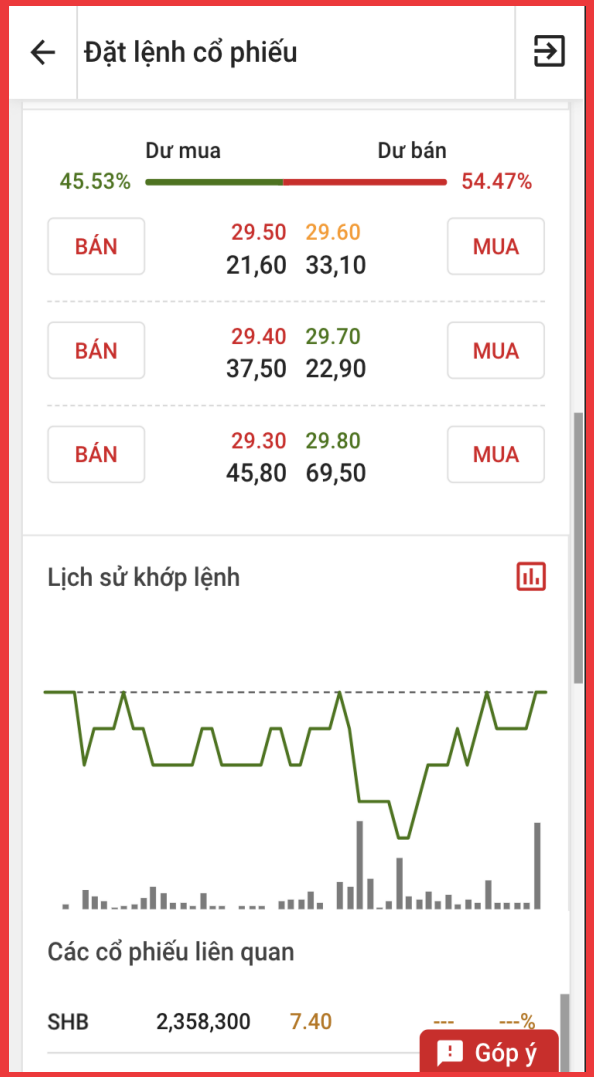
Mã CP 1	Giao dịch	KL đặt	Giá đặt	KL khớp	Giá khớp	Trạng thái	Thời gian
HID	Bán	20,960	2.40	0	0.00	Đã hủy	10:12

Tài sản cổ phiếu

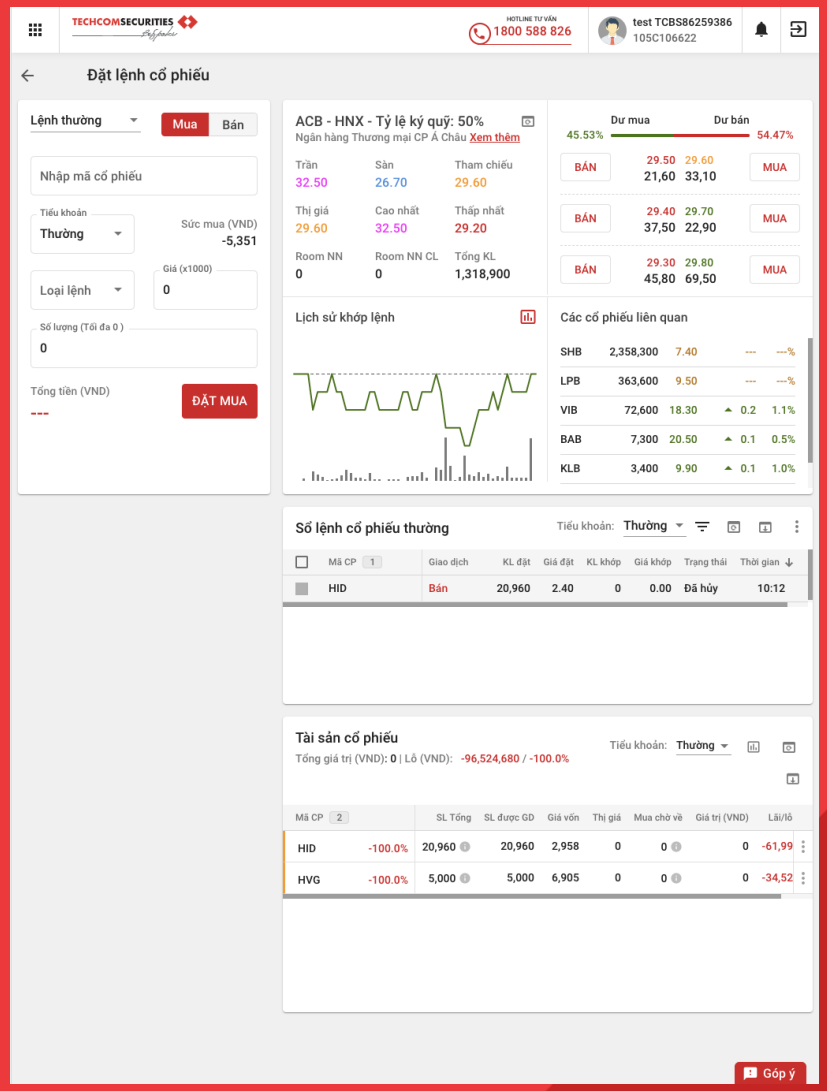
Tiểu khoản: Thường

Góp ý

Mobile



Tablet



Our considerations

- Company Working model
- Time to market
- Feature scalability
- Maintainable & Sustainability
- Security
- Performance
- Learning curve & Cost

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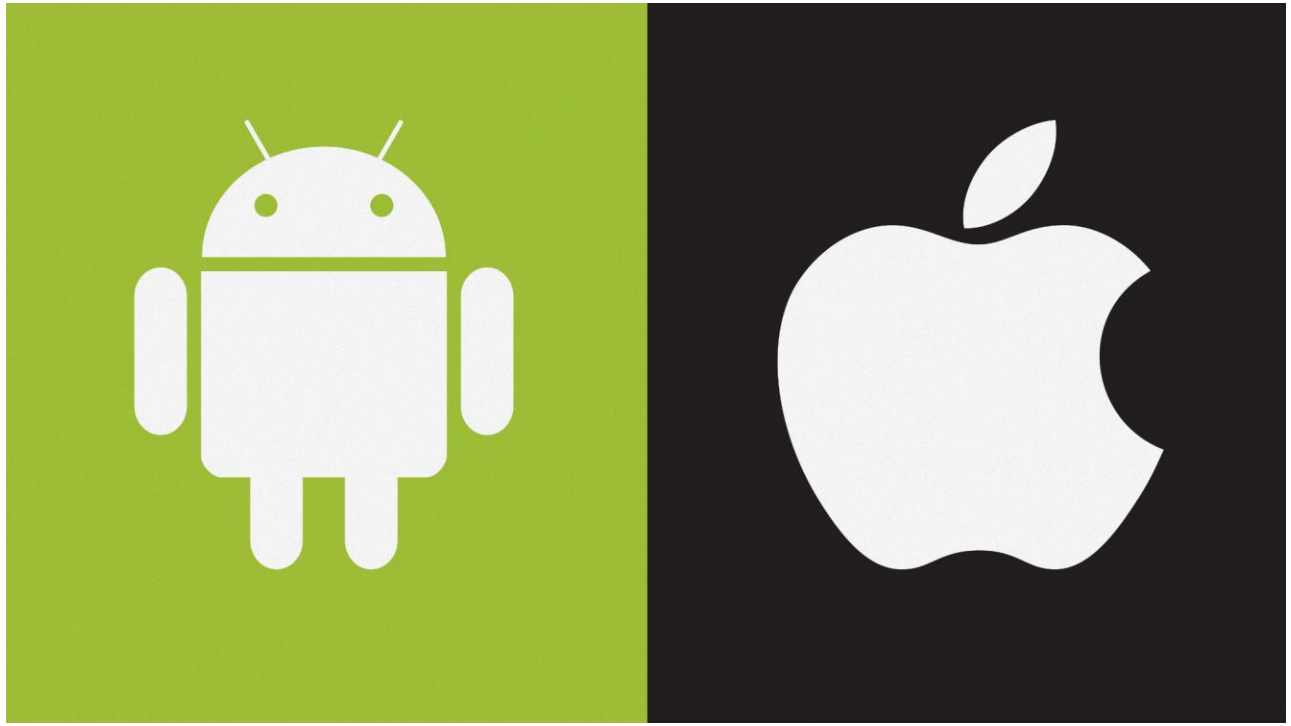
Native



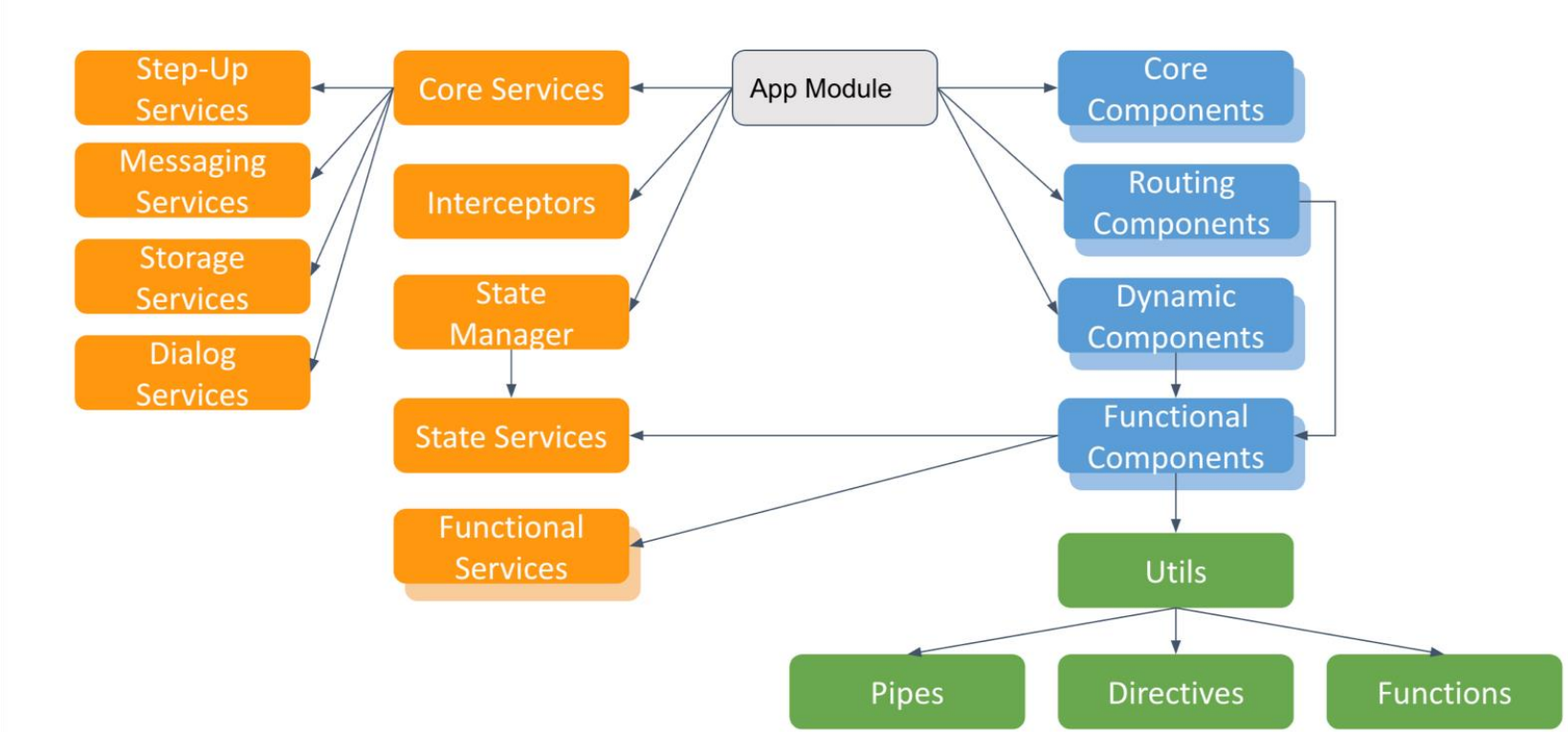
PWA

Cross Platforms

Hybrid

Scalability

Feature components oriented



Scalability

Separate Mobile style and Mobile functions and conditional bundling to support fully single code base.

Maintainable

Using OOP and Reactive Programing

```
Nguyễn Bình Dương, 4 months ago | 2 authors (Nguyễn Bình Dương and others)
export class CachingClass<T> {

  public subject: BehaviorSubject<T | Error>;
  public subscription: Subscription;
  public isSyncing: boolean;
  public disableAlwaysSync: boolean;

  constructor(defaultValue?: T, disableAlwaysSync?: boolean) {
    this.subject = new BehaviorSubject(defaultValue ? defaultValue : null);
    this.isSyncing = false;
    if (disableAlwaysSync) {
      this.disableAlwaysSync = true;
    } else {
      this.disableAlwaysSync = false;
    }
  }
}

Nguyễn Bình Dương, 4 months ago | 2 authors (Nguyễn Bình Dương and others)
export class CachingService {
  constructor() { }

  protected get<T>(cachingObject: CachingClass<T>, syncObserver: Observable<T>): Observable<T | Error> {
    if (!cachingObject.disableAlwaysSync || !cachingObject.subject.value || cachingObject.subject.value instanceof Error) {
      this.emit<T>(cachingObject, syncObserver);
    }
    return cachingObject.subject.asObservable();
  }

  protected emit<T>(cachingObject: CachingClass<T>, syncObserver: Observable<T>) {
    if (!cachingObject.isSyncing) {
      cachingObject.isSyncing = true;
      cachingObject.subject.next(null);
      if (cachingObject.subscription) cachingObject.subscription.unsubscribe();
      cachingObject.subscription = syncObserver.subscribe((data) => {
        cachingObject.isSyncing = false;
        cachingObject.subject.next(data);
      }, (error) => {
        cachingObject.isSyncing = false;
        cachingObject.subject.next(new Error(error));
      });
    }
  }

  protected clear<T>(cachingObject: CachingClass<T>) {
    if (cachingObject.subscription) cachingObject.subscription.unsubscribe();
    cachingObject.subject.next(null);
  }
```

Apply OOP & Reactive Programing

Maintainable

Apply TS lint rules

Apply TS Lint

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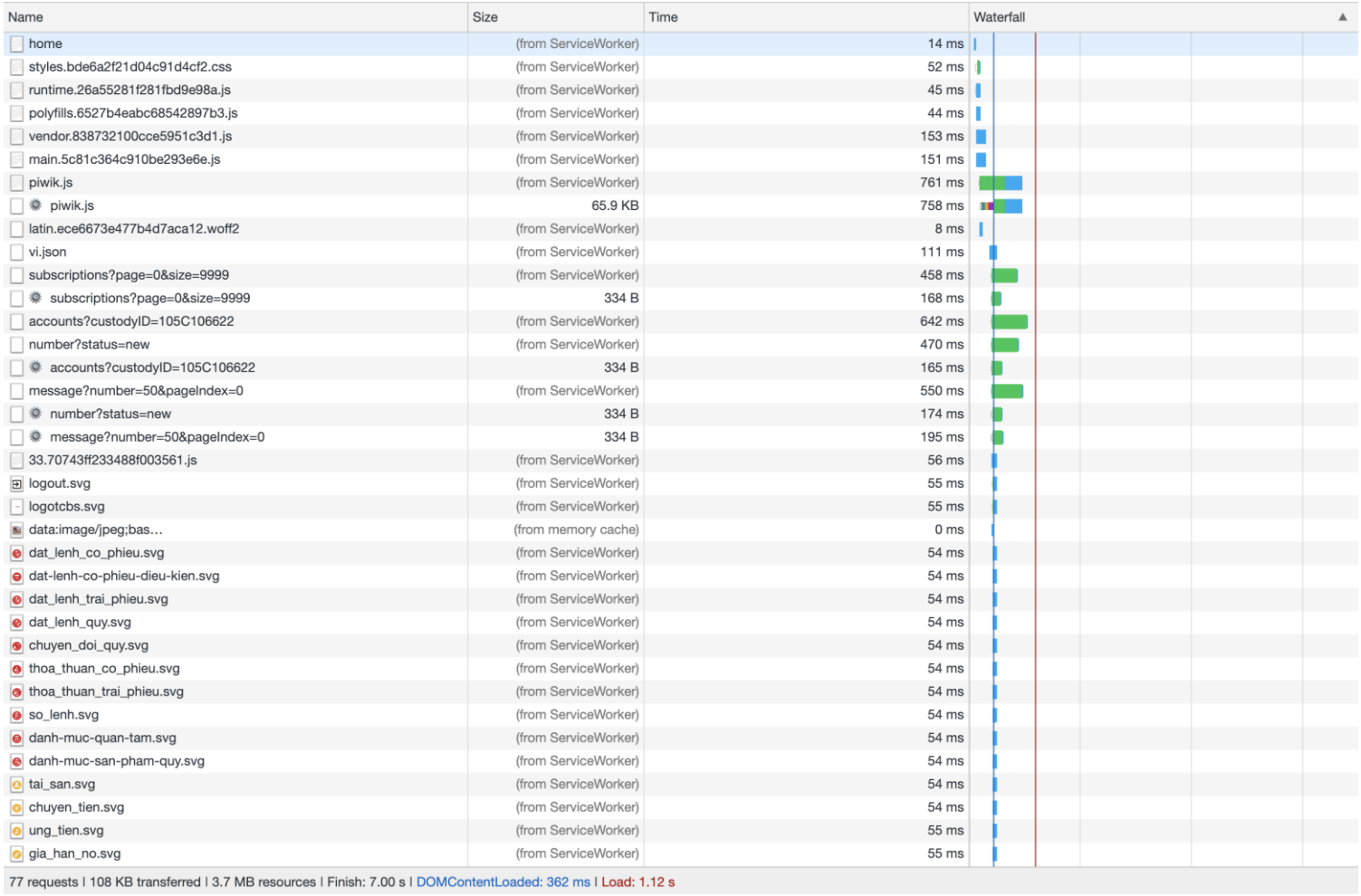
Timming - In App performance

- centralize common process, take advantage of http interceptor, http headers (error handling, authen - author, OTP verification, maintenance status, SSO, captcha, network lost and retry handling, analytic event tracking)

Performance - Initial page load

Packing, reduce bundle size,
Lazy loading, service worker



Name	Size	Time	Waterfall
home	(from ServiceWorker)	14 ms	
styles.bde6a2f21d04c91d4cf2.css	(from ServiceWorker)	52 ms	
runtime.26a55281f281fbd9e98a.js	(from ServiceWorker)	45 ms	
polyfills.6527b4eabc68542897b3.js	(from ServiceWorker)	44 ms	
vendor.838732100cce5951c3d1.js	(from ServiceWorker)	153 ms	
main.5c81c364c910be293e6e.js	(from ServiceWorker)	151 ms	
piwik.js	(from ServiceWorker)	761 ms	
piwik.js	65.9 KB	758 ms	
latin.ece6673e477b4d7aca12.woff2	(from ServiceWorker)	8 ms	
vi.json	(from ServiceWorker)	111 ms	
subscriptions?page=0&size=9999	(from ServiceWorker)	458 ms	
subscriptions?page=0&size=9999	334 B	168 ms	
accounts?custodyID=105C106622	(from ServiceWorker)	642 ms	
number?status=new	(from ServiceWorker)	470 ms	
accounts?custodyID=105C106622	334 B	165 ms	
message?number=50&pageIndex=0	(from ServiceWorker)	550 ms	
number?status=new	334 B	174 ms	
message?number=50&pageIndex=0	334 B	195 ms	
33.70743ff233488f003561.js	(from ServiceWorker)	56 ms	
logout.svg	(from ServiceWorker)	55 ms	
logotcbs.svg	(from ServiceWorker)	55 ms	
data:image/jpeg;bas…	(from memory cache)	0 ms	
dat_lenh_co_phieu.svg	(from ServiceWorker)	54 ms	
dat-lenh-co-phieu-dieu-kien.svg	(from ServiceWorker)	54 ms	
dat_lenh_trai_phieu.svg	(from ServiceWorker)	54 ms	
dat_lenh_quy.svg	(from ServiceWorker)	54 ms	
chuyen_doi_quy.svg	(from ServiceWorker)	54 ms	
thoa_thuan_co_phieu.svg	(from ServiceWorker)	54 ms	
thoa_thuan_trai_phieu.svg	(from ServiceWorker)	54 ms	
so_lenh.svg	(from ServiceWorker)	54 ms	
danh-muc-quan-tam.svg	(from ServiceWorker)	54 ms	
danh-muc-san-pham-quy.svg	(from ServiceWorker)	54 ms	
tai_san.svg	(from ServiceWorker)	54 ms	
chuyen_tien.svg	(from ServiceWorker)	54 ms	
ung_tien.svg	(from ServiceWorker)	55 ms	
gia_han_no.svg	(from ServiceWorker)	55 ms	

77 requests | 108 KB transferred | 3.7 MB resources | Finish: 7.00 s | DOMContentLoaded: 362 ms | Load: 1.12 s

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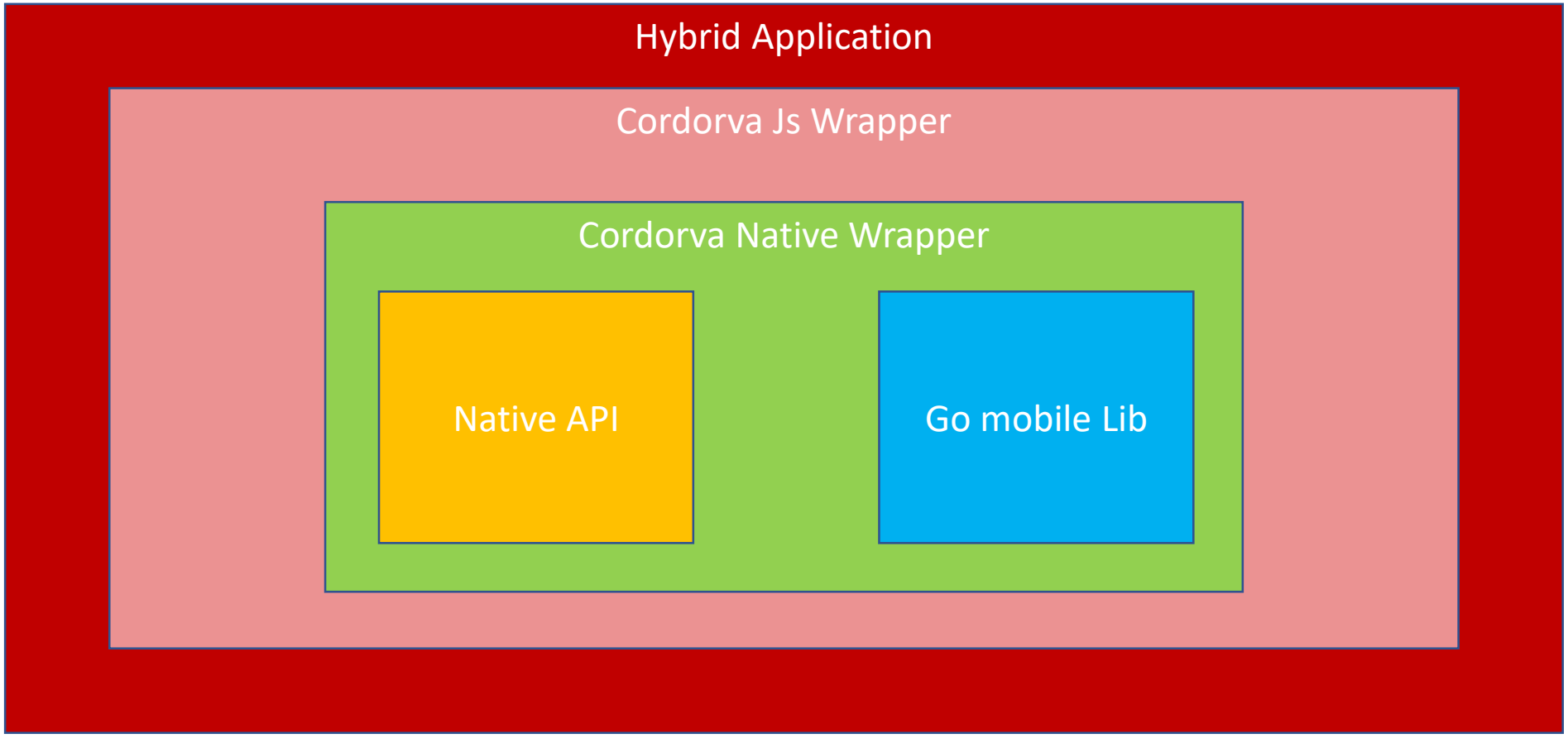
Performance - In App performance

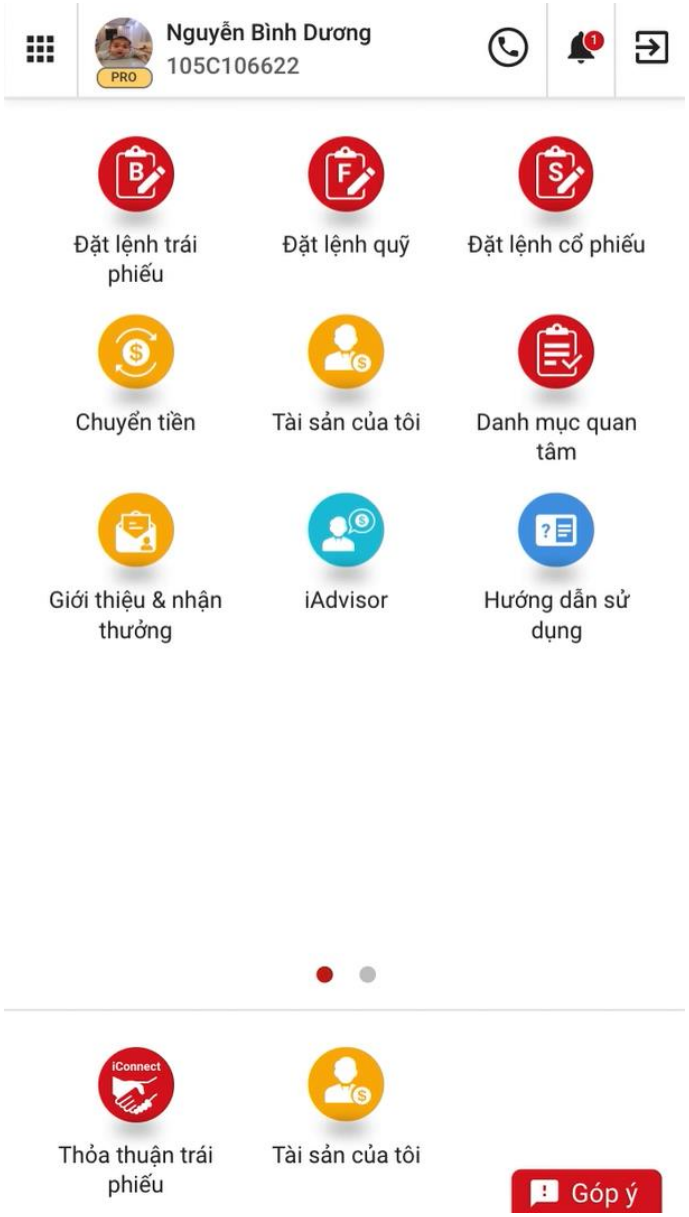
- Strictly control Event Listener and DOM manipulation
- Reduce XHR calling

Security & Mobile native function



UX

Try to build native experience in web technology like, swipe, scroll, drag&drop



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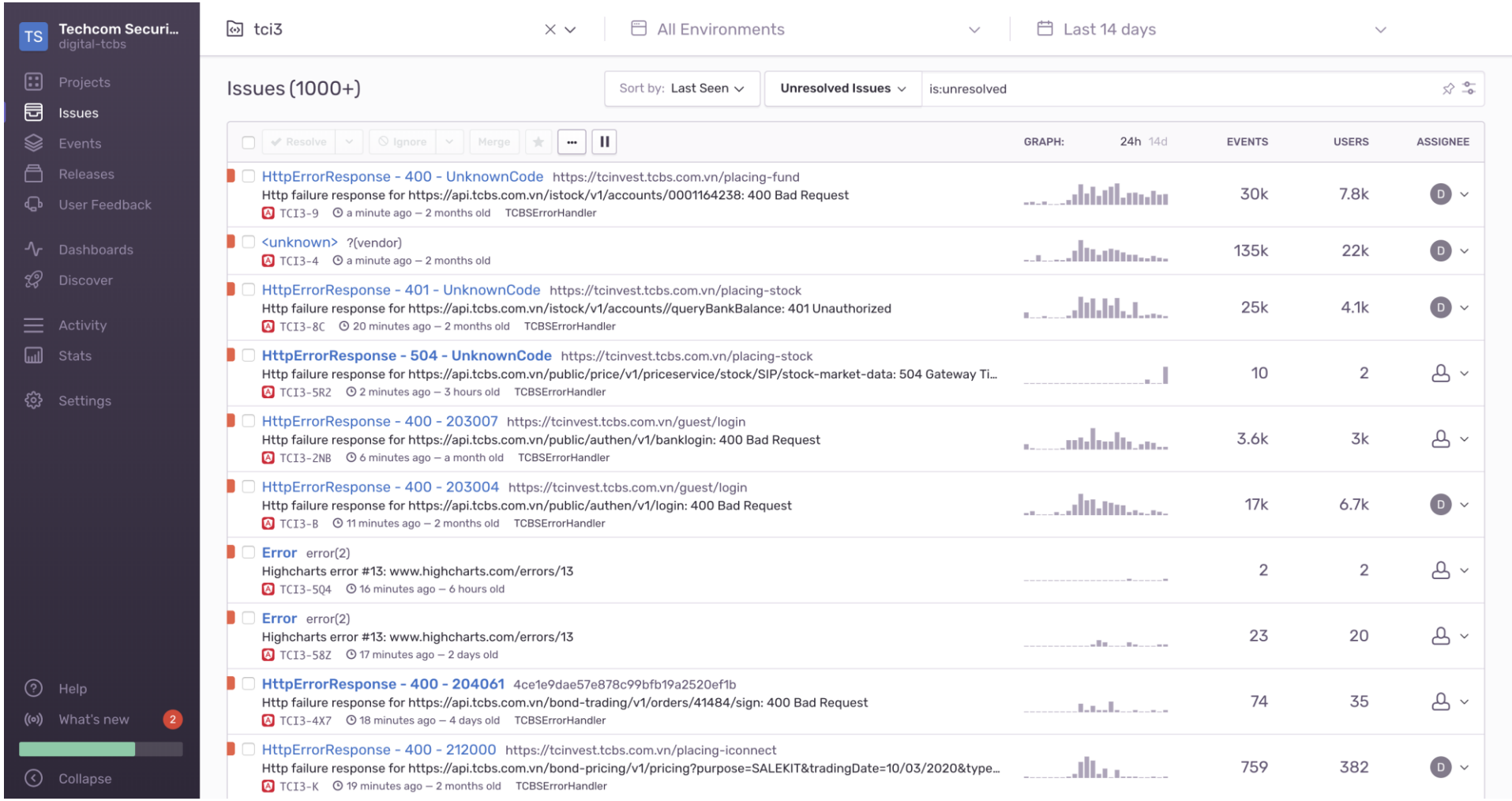
UX

By apply Error tracking system for Client, we create “active customer service” experiences



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Thanks you - Q&A

(We are hiring!)

Thanks to