User scripting on Android using BladeDroid

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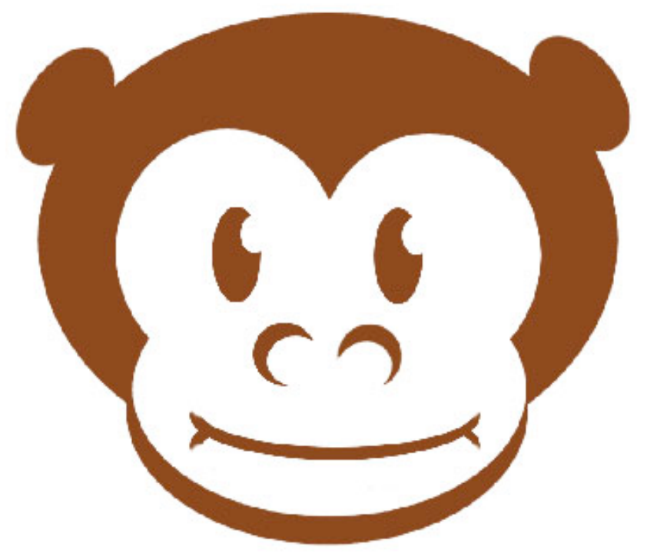
User Scripting

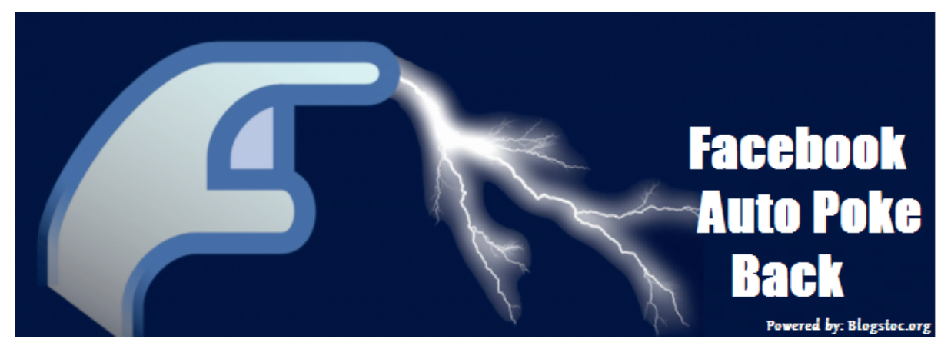
User scripting is useful on the web

- Browser Extensions and Greasemonkey scripts
- Let user customize the app within browser



Greasemonkey

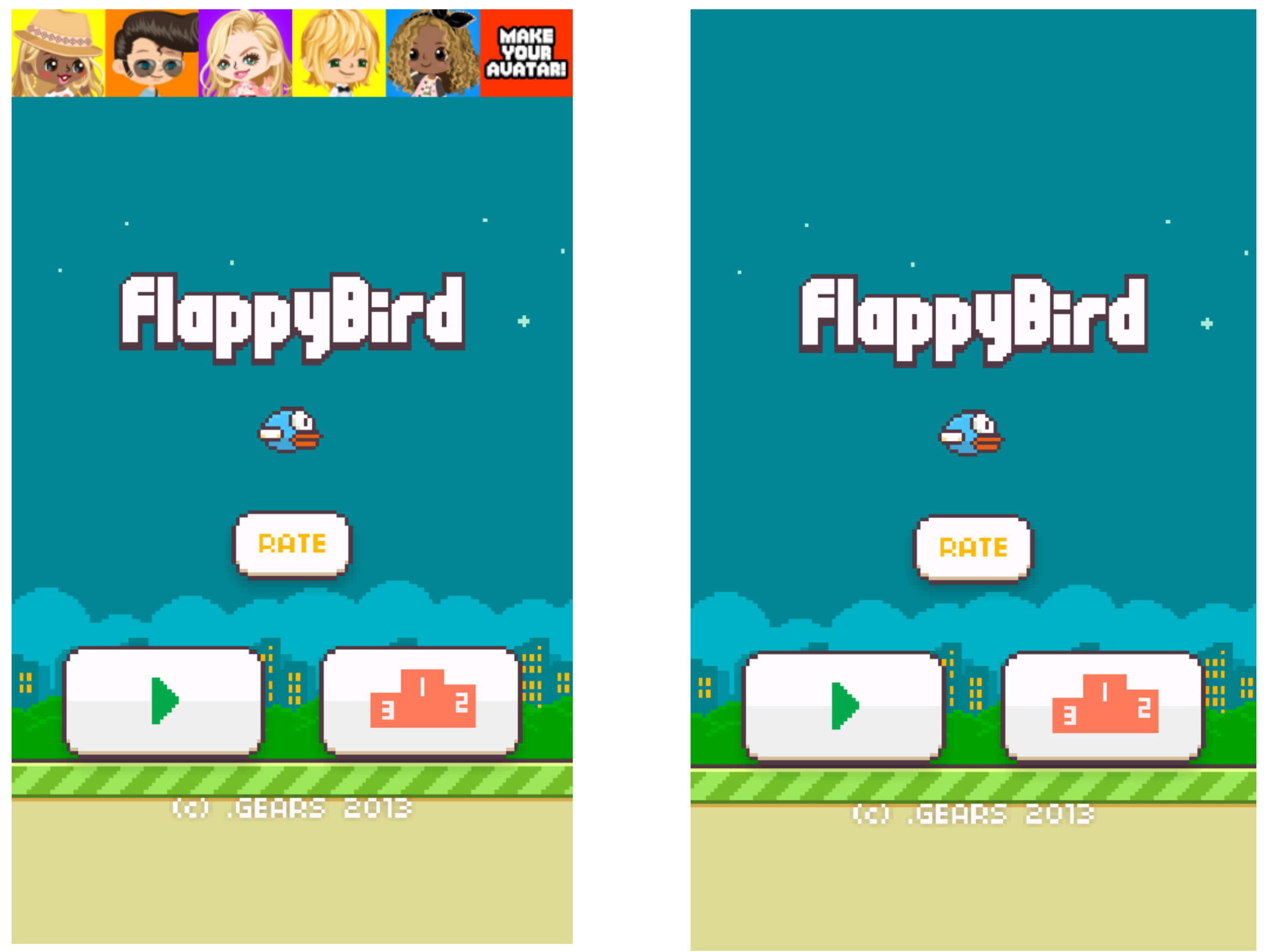
Ad Block Plus



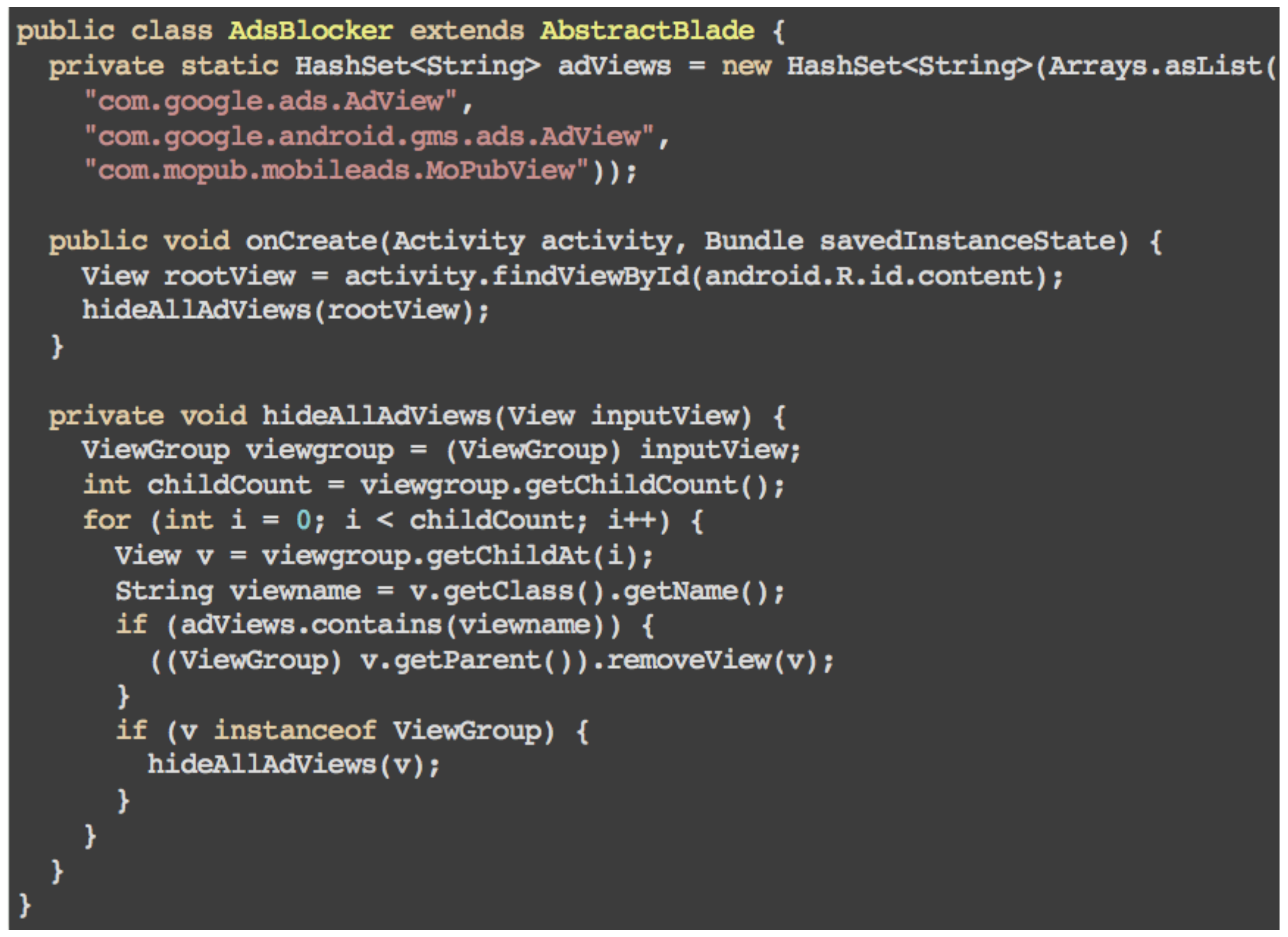
Mobile apps are large binary silos

User-Scripting in apps

Blades are user scripts for Android!



Ad Blocker



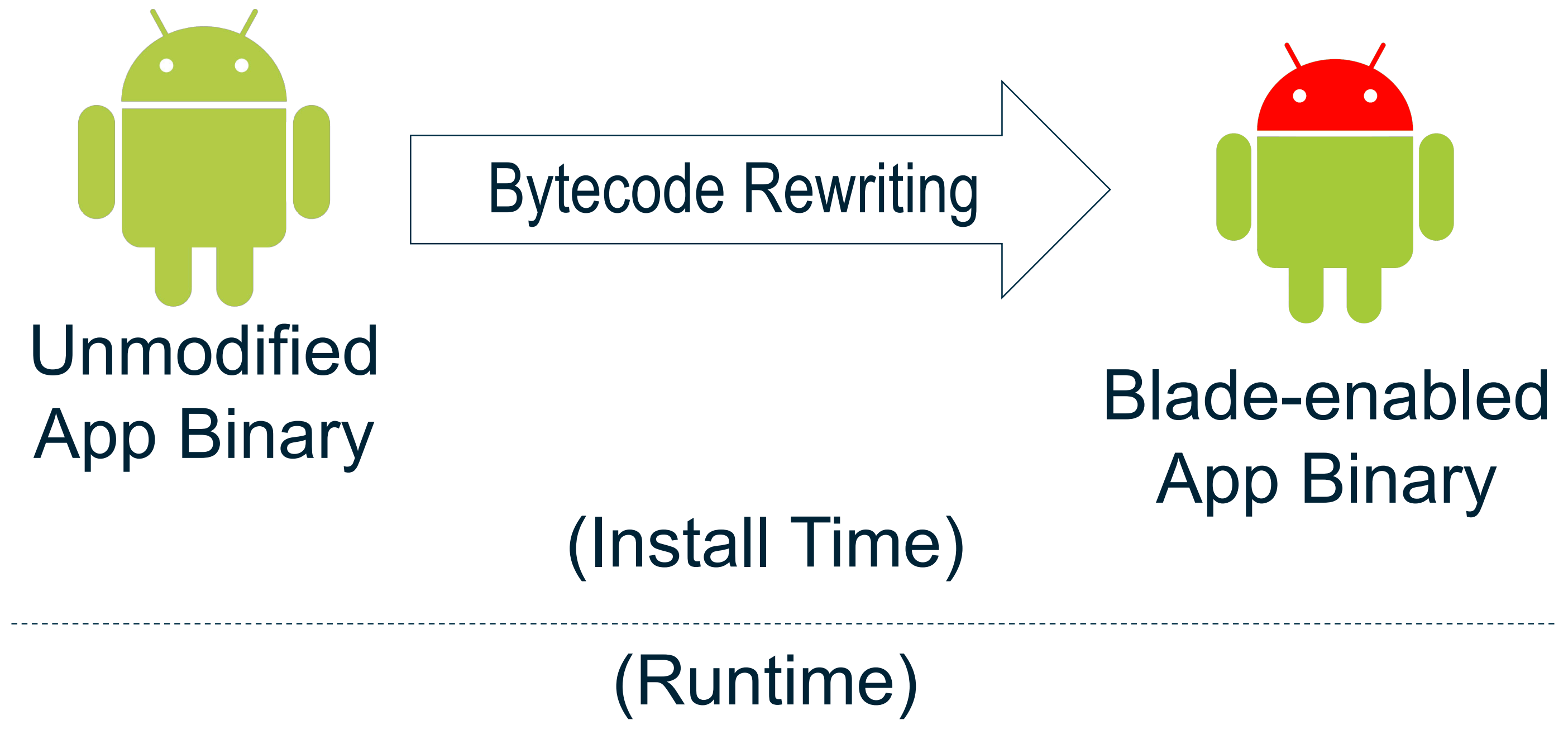
```
public class AdsBlocker extends AbstractBlade {
  private static HashSet<String> adViews = new HashSet<String>(Arrays.asList(
    "com.google.ads.AdView",
    "com.google.android.gms.ads.AdView",
    "com.mopub.mobileads.MoPubView"));

  public void onCreate(Activity activity, Bundle savedInstanceState) {
    View rootView = activity.findViewById(android.R.id.content);
    hideAllAdViews(rootView);
  }

  private void hideAllAdViews(View inputView) {
    ViewGroup viewgroup = (ViewGroup) inputView;
    int childCount = viewgroup.getChildCount();
    for (int i = 0; i < childCount; i++) {
      View v = viewgroup.getChildAt(i);
      String viewname = v.getClass().getName();
      if (adViews.contains(viewname)) {
        ((ViewGroup) v.getParent()).removeView(v);
      }
      if (v instanceof ViewGroup) {
        hideAllAdViews(v);
      }
    }
  }
}
```

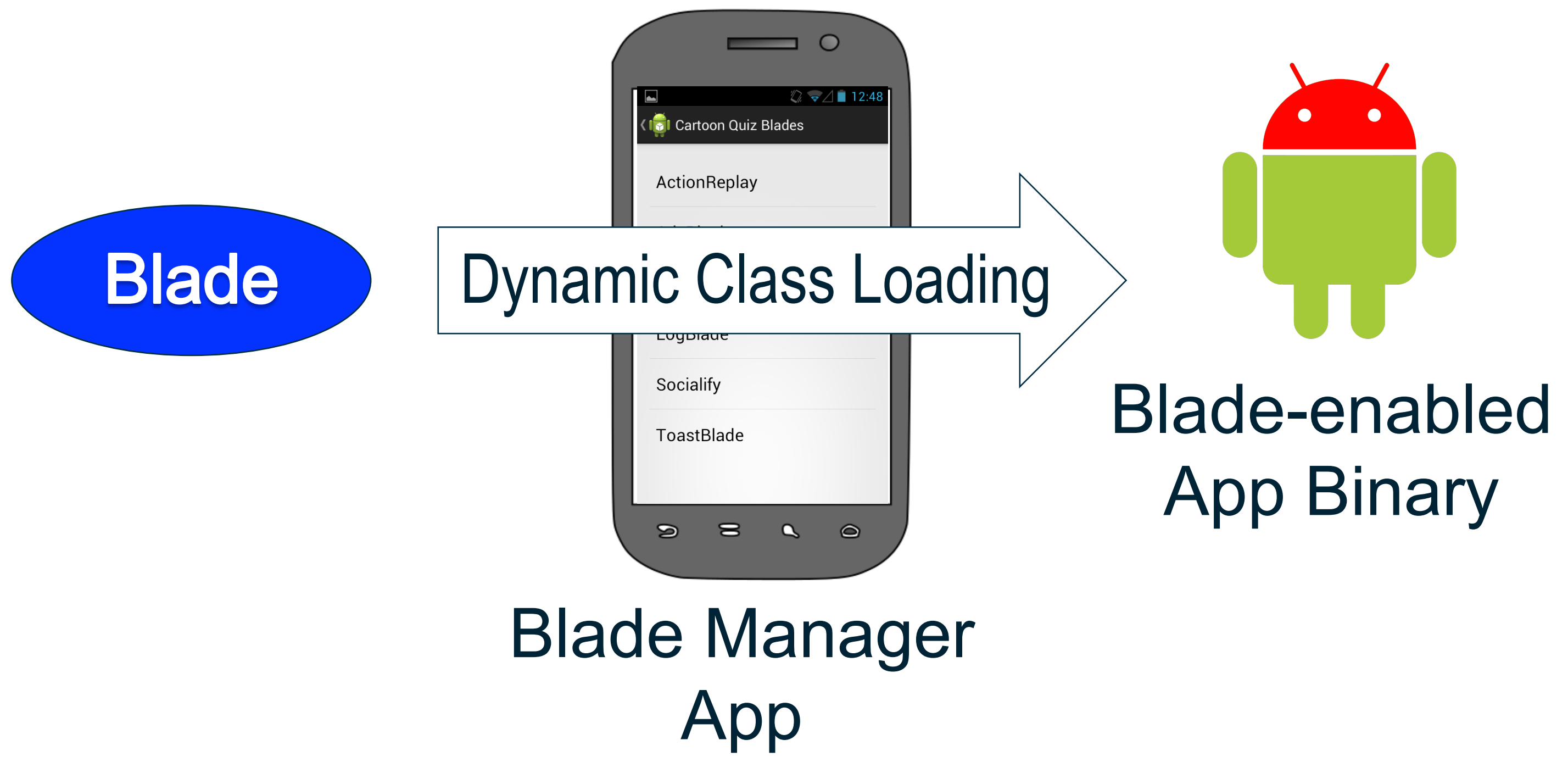
- ***Game Cheater***
- ***Socialify:*** Like button on every page
- ***Record and Replay:*** For debugging
- ***App Automation:*** For security analysis

….and many more

BladeDroid Design

Bytecode Rewriting + Dynamic Class Loading





BladeDroid is awesome because:

- No source code required. Built into app store.
- No modification to OS. Deployable *today!*
- Secure: Blades have no additional privilege