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Maps APIs + Mobile

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What are (were) the API options?

Lowest common denominator: Static Maps

Android, iPhone: Native APIs

iPhone, Android, Nokia, Palm, etc: JavaScript API

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Browser vs Native APIs

- Many different platforms
- Let us solve the cross-device issues
- Mashups available on desktop as well as mobile
- No download
- We can release features (and bug fixes) faster

What makes mobile browsers tricky?

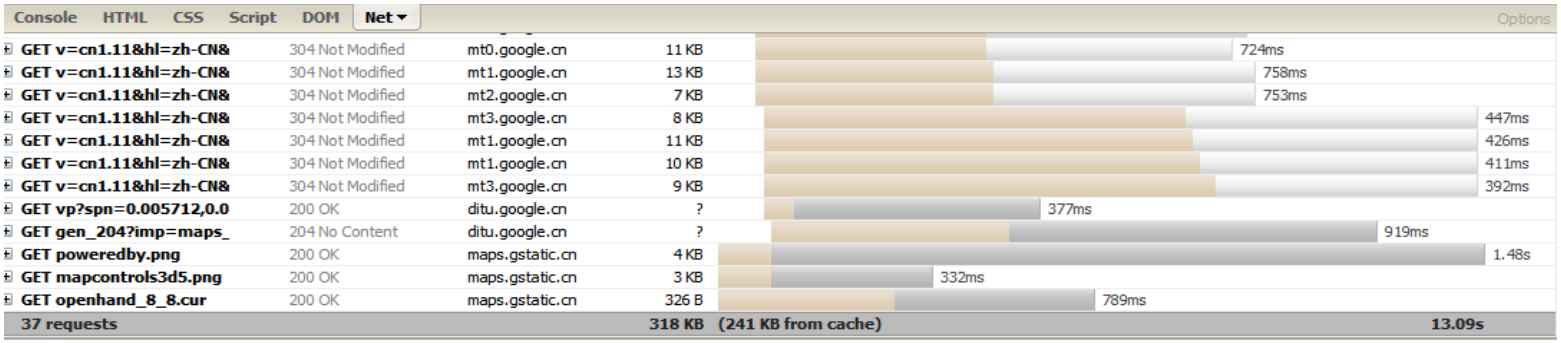
- Screen size
- User interface and interaction
- Speed
- Use cases

Causes of Latency

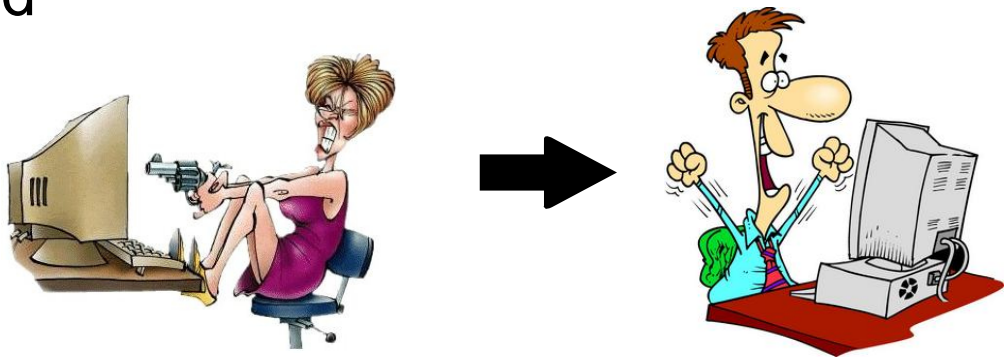
- Serving data
- Download time
  - Bandwidth vs latency
    - 3G networks have reasonably high bandwidth but low latency
    - Loading small and big files take a surprisingly similar amount of time
- JavaScript parsing time (iPhone Safari)

Back up: What is latency?

- Page load: the time until all components of the page are loaded, visible, and usable



- User perceived: the time until the page appears to have loaded



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Attempts to reduce JS page load latency

- Reduce size of JavaScript
  - Compile/obfuscate code
  - Delay load code until required
- Combine image fetches using sprites

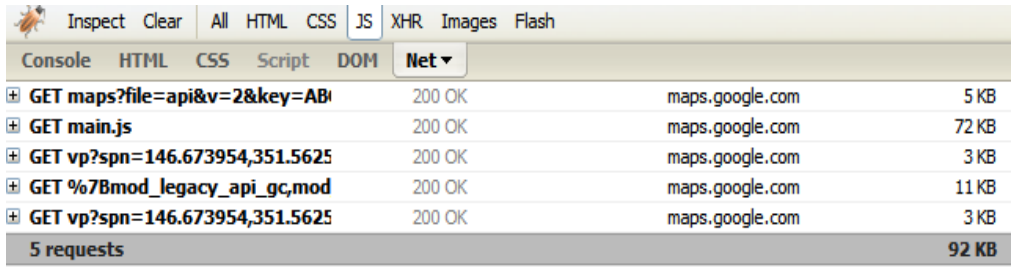
Attempts to reduce JS perceived latency

- Load Static map first, and then JS

JS -> Static

So, how well does Google Maps API v2 work on mobile browsers?

- Not very
- Initial download: 60kB in 2006; 190kB now
- Time to load tiles
- Synchronous access to state limits ability to delay-load code
- Code base not designed with mobile in mind



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Introducing v3

Google code labs e.g. "ajax apis" or "open source" Search

Google Maps JavaScript API V3 (Labs)

Home Docs

Sign up for an API key
Create a KML Sitemap

Maps API Version 3

- Developer Guide
  - Tutorial
  - Events
  - Controls
  - Overlays
  - Services
- API Reference
- Samples
- Demo Gallery
- Known Issues

The Google Maps API V3

Welcome to Version 3
Audience
Specifying the Sensor Parameter
Versioning
Troubleshooting

Welcome to Version 3

Welcome to the release of version 3 of the Google Maps API. This JavaScript API will loo
Maps API. However, much has changed under the hood: Version 3 (called V3 within this
especially on mobile browsers such as Android-based devices and the iPhone™. The init
available in the V2 API. We will migrate additional features from V2 while working to keep
maintain our optimized loading speeds. We welcome your feedback and comments on th
Google Maps API V3 discussion group.

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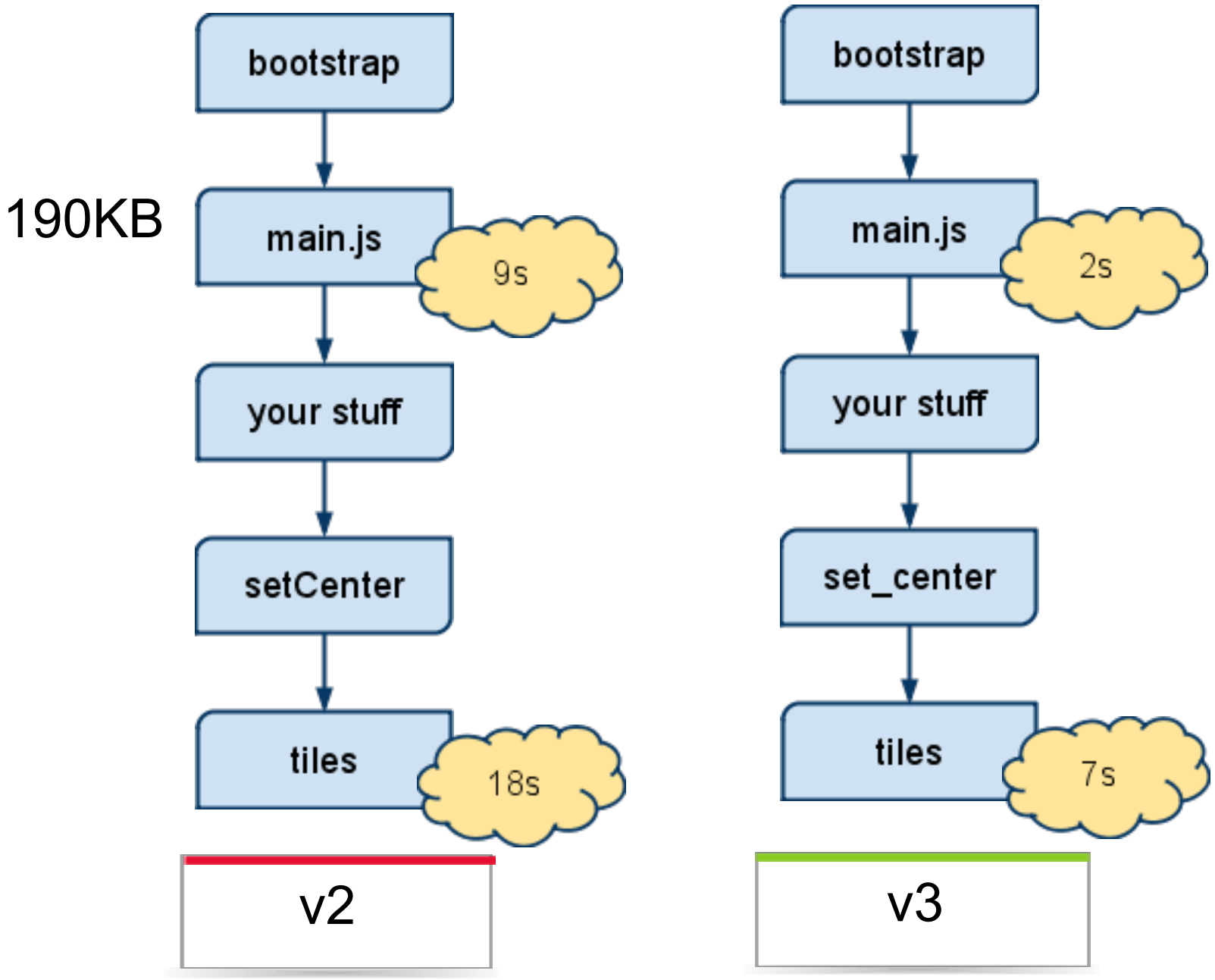
Speed Comparison



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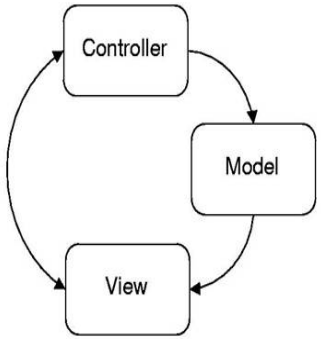
How does v3 accomplish this improvement?

- Start with static map



- MVC Architecture

- Remove unneeded code, Untangle code

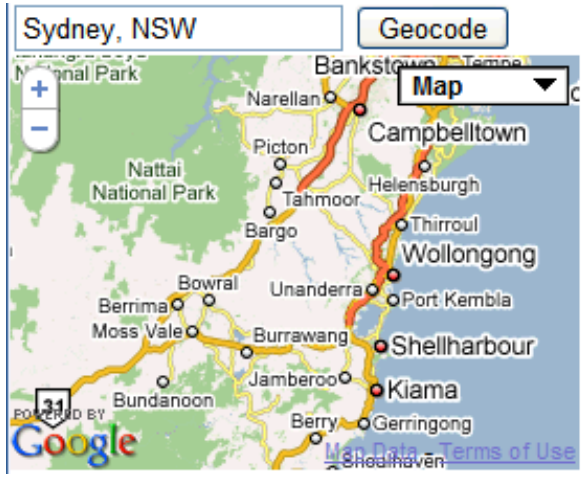
What does v3 look like?

```
var map = new google.maps.Map(
   document.getElementById("map_canvas"),
   { center: new google.maps.LatLng(37.442, -122.142),
   zoom: 13,
   mapTypeId: google.maps.MapTypeId.ROADMAP
  });
var marker = new google.maps.Marker(
 {
   position: map.get_center(),
   map: map
  });
```

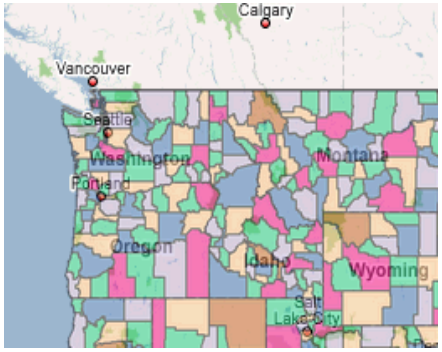
Simple Map

What can you do with v3?

[Markers, Controls, InfoWindows]



[Geocoding (Forward/Reverse)]



[Custom Overlays]

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Screen-Size Dependent Default UI

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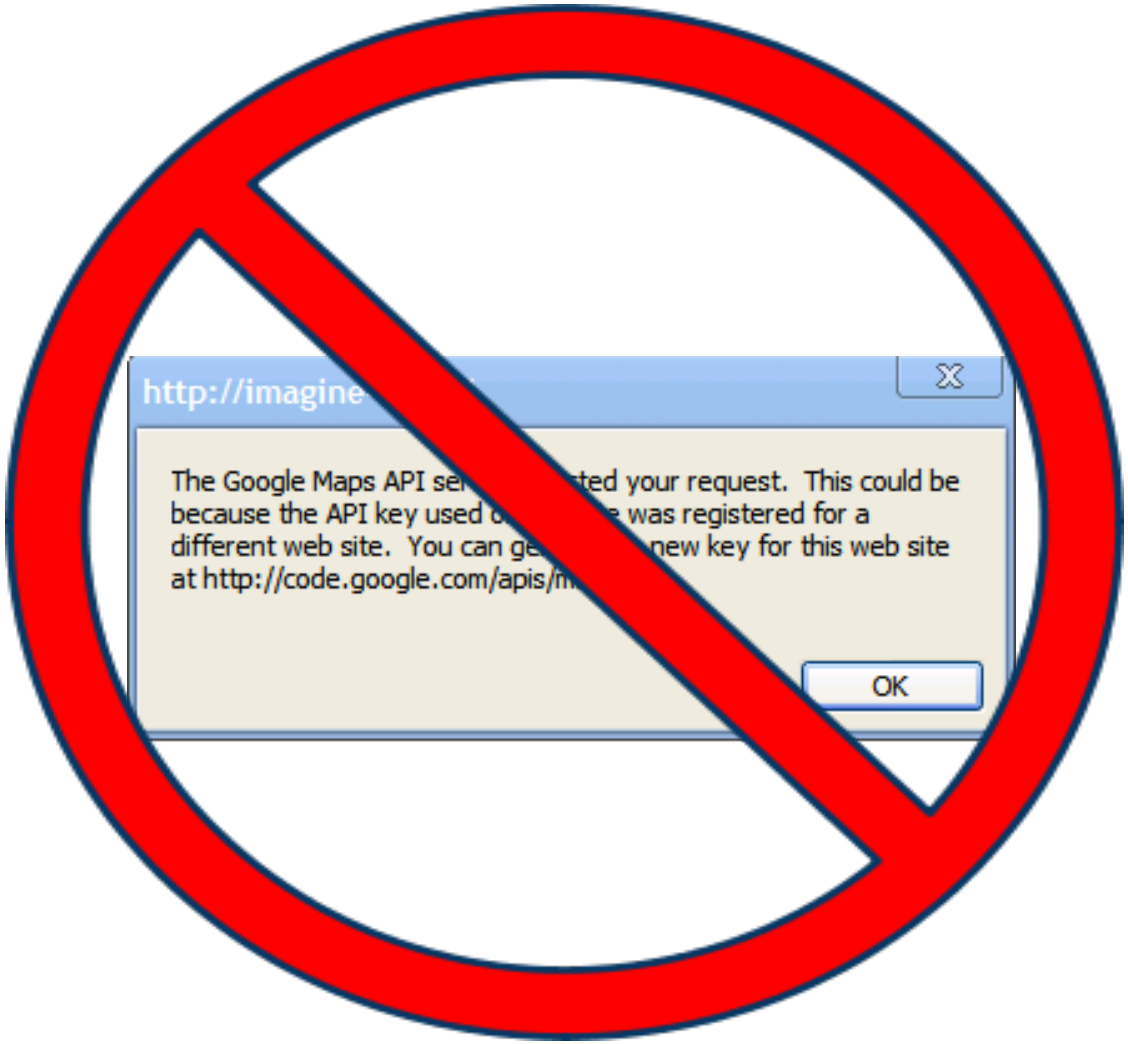
No Keys Required!

http://maps.google.com/maps/api/js?sensor=false



Geocoding API Improvements: Feature Tags

Compare:

```
-<AddressDetails Accuracy="6">
 -<Country>
    <CountryNameCode>CN</CountryName
    <CountryName>中国</CountryName>
   -<AdministrativeArea>
      <AdministrativeAreaName>北京市</A
     -<DependentLocality>
        <DependentLocalityName>通州区</
       -<Thoroughfare>
          <ThoroughfareName>朝阳路</Th
        </Thoroughfare>
      </DependentLocality>
    </AdministrativeArea>
  </Country>
</AddressDetails>
```

v2

```
"address_components": [ {
   "long_name": "朝阳路",
   "short_name": "朝阳路",
   "types": [ "route" ]
}, {
   "long_name": "通州区",
   "short_name": "通州区",
   "types": [ "sublocality", "political"
}, {
   "long_name": "北京市",
   "short_name": "北京市",
   "types": [ "administrative_area_level_
}, {
   "long_name": "中国",
   "short_name": "CN",
   "types": [ "country", "political" ]
```

v3

Geocoding API Improvements: Location Types

Chaoyang District:
"location_type": "GEOMETRIC_CENTER"

1 Main Rd London, UK:
"location_type": "RANGE_INTERPOLATED"

662 Loma Verde Ave:
"location_type": "ROOFTOP"

Geocoding API Improvements: Bounds


```
"viewport": {
    "southwest":
       { "lat": 39.9125272, "lng": 116.6212861 },
   "northeast":
       { "lat": 39.9188224, "lng": 116.6357874 }},
"bounds": {
    "southwest":
       { "lat": 39.9135502, "lng": 116.6212861 },
     "northeast": { "lat": 39.9177994, "lng": 116.6357874 }
 }
```

Supported Browsers

old

now

future

?

Demos

Special Notes on China

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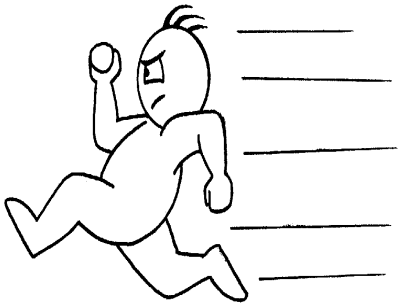
Review: Maps API v2 for China users

```
<script src="http://ditu.google.cn/mapsfile=api&amp;v=2&amp;key=ABCDEFG"
        type="text/javascript"></script>
```

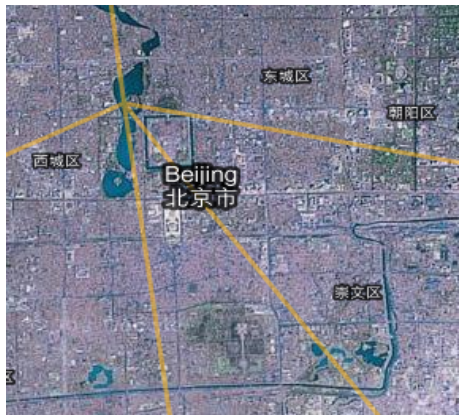
The main differences between maps.google.com + ditu.google.cn are:

Data Provider

Speed



Tile Align



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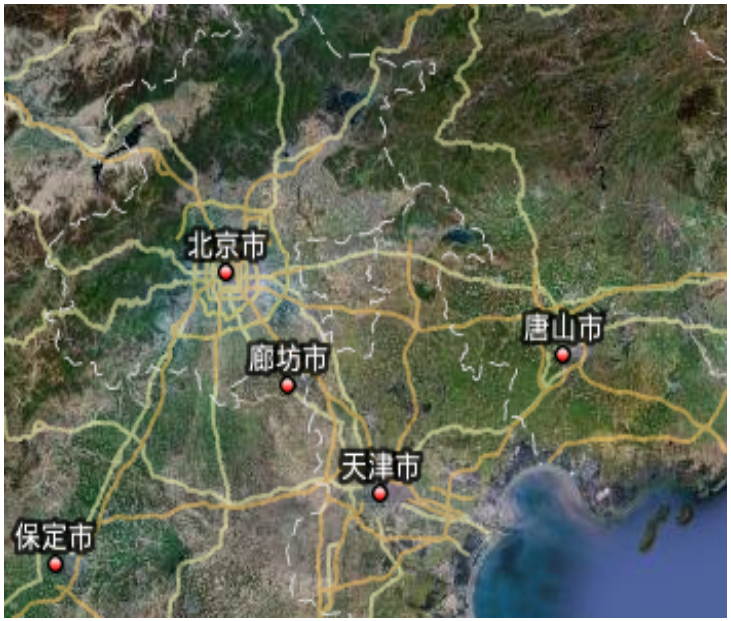
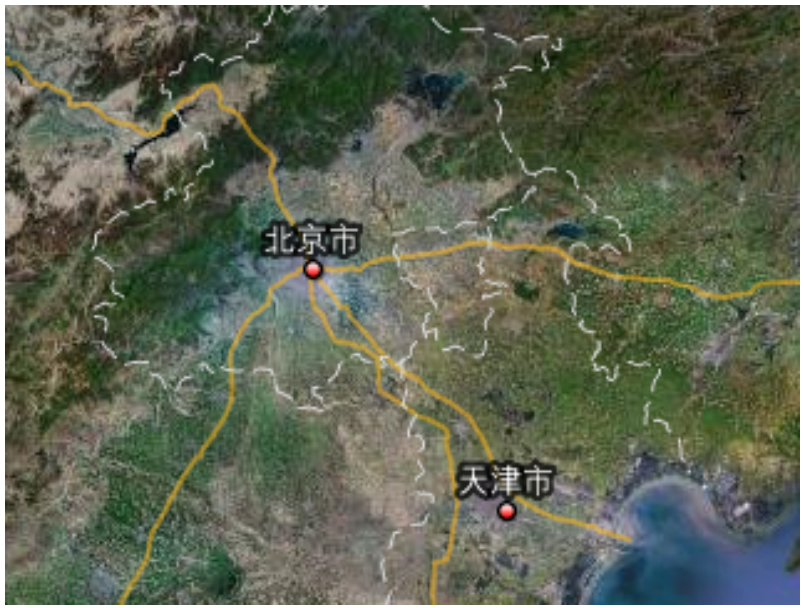
Maps API v3 for China Users

Maps API v3 can **not** be loaded from ditu.google.cn yet.

Compare:



v2

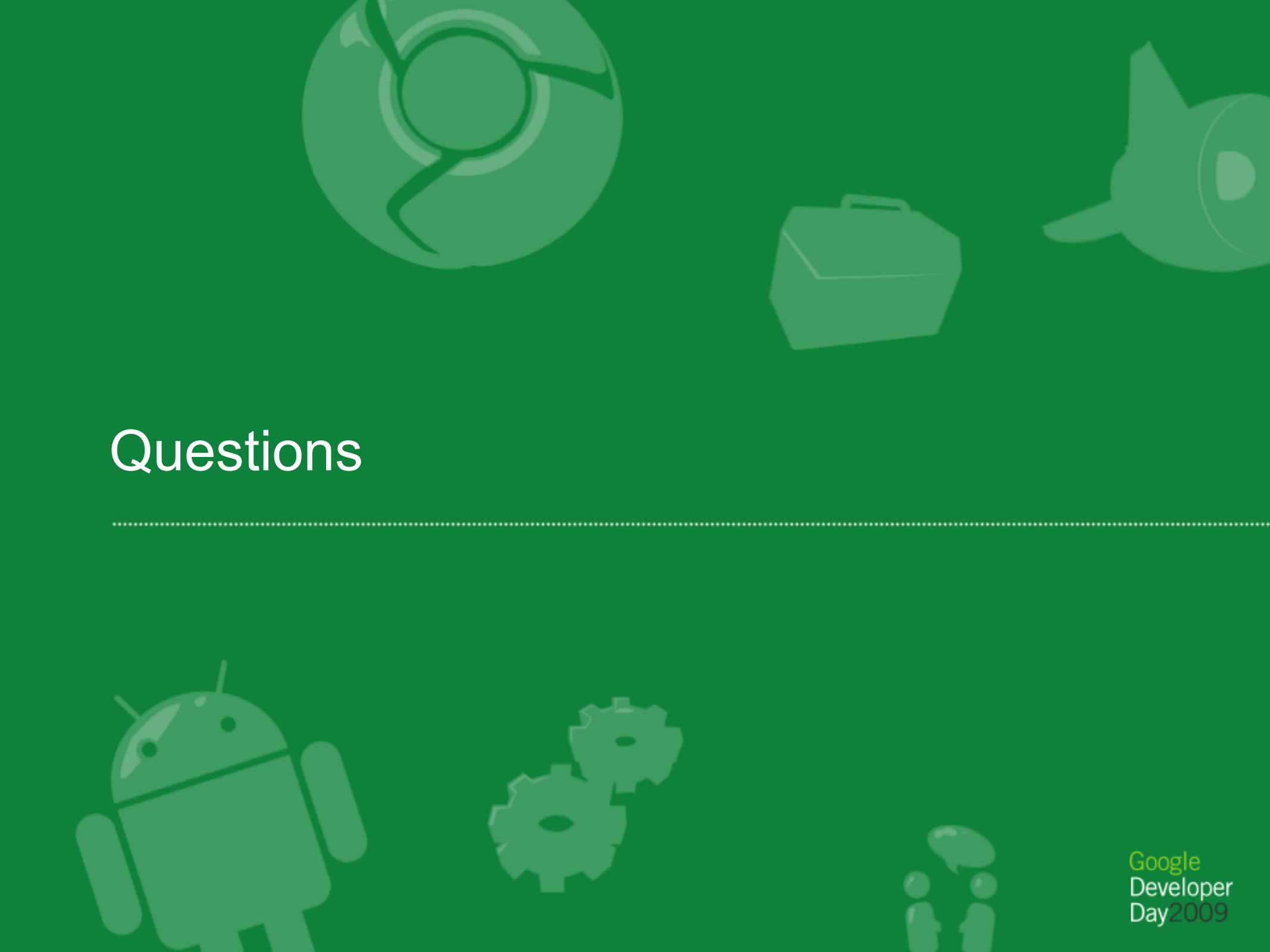


v3

v3 Support for China Developers

No docs (yet).

Use same forum:
http://groups.google.com/group/Google-Maps-API-China



Questions

Learn more at http://code.google.com/apis/maps/

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How does v3 address these issues?

- Significantly reduced initial download size: 35kB
- Significantly reduced loading time
- Incorporates static map to reduce perceived latency
- Designed with mobile devices in mind