SVGMap in the Japanese Disaster Response Community

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Japanese WebGIS/Mapping user community involved in disaster response

There is a community in Japan consisting of infrastructure providers, government organizations, and the academies that support them, all of whom need to utilize WebGIS to address disaster response.

It's called the Tokyo Metropolitan Resilience Project. (FY2017-2021)

https://forr.bosai.go.jp/e/
https://www.youtube.com/watch?v=WaDHFjUKcks

Comments from the Disaster Response Community

- We are users rather than providers of information systems.
- Most information necessary for disaster response is already on the Web.
- However, each individual piece of information alone is not very useful.
- Here, much of that information is already on the individual web map.
- If they could be overlaid as they are, it would be very useful.

- But from the user's point of view, even this trivial thing can't be done now ...
- We have to compare the map windows side by side with our eyes.
- Or we take a hard copy and overlay it manually with paint software.

Reference

Survey Results of Information Required for Disaster Response in Japan and its Availability to the Public

By Tokyo Metropolitan Resilience Project

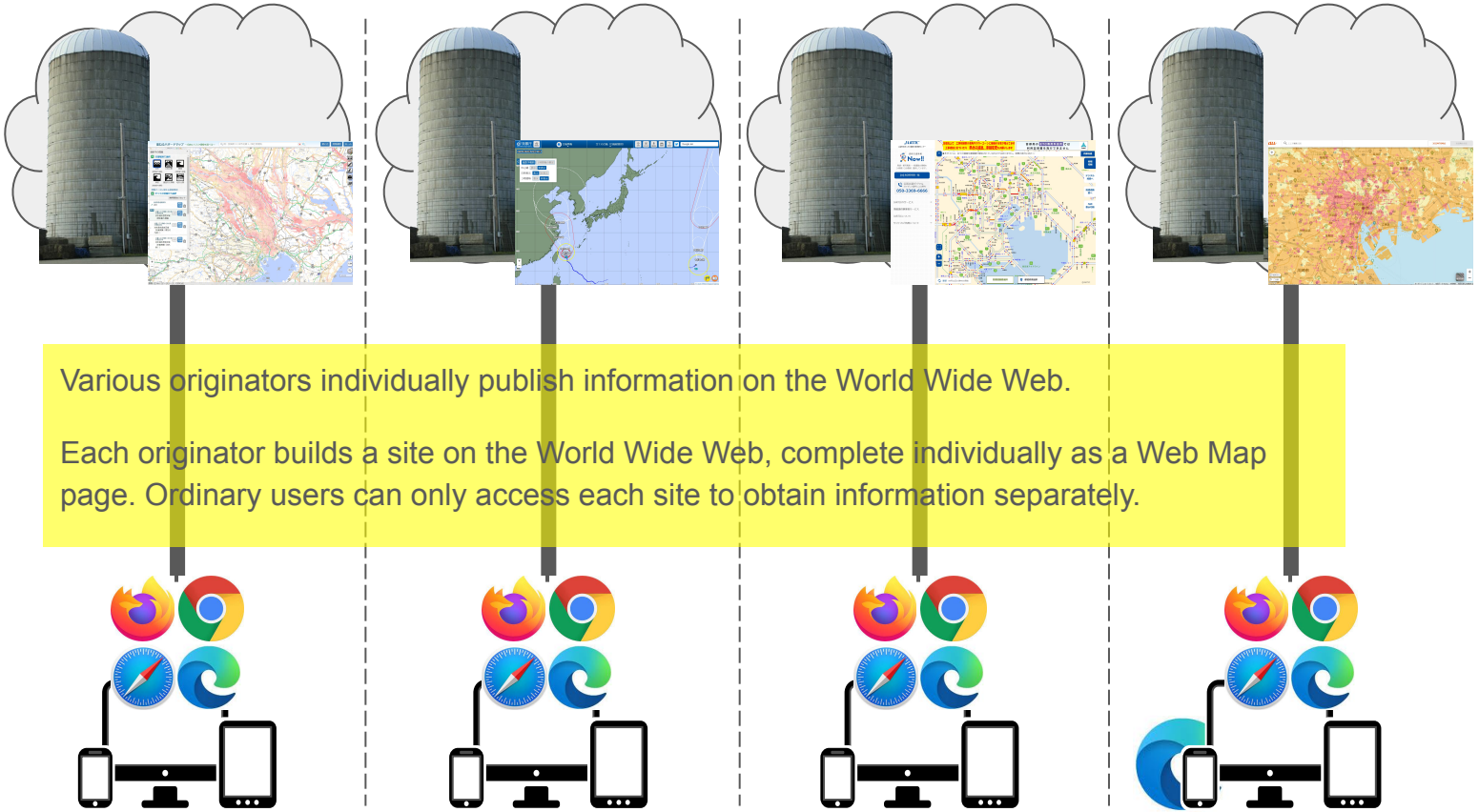
Table 2. Progress of data collection between the space-time in the infrastructure subcommittee.

Category	Information type	Provider	Source/contents	Already open to the public	Delivered with map, or map service of each organization own	Source data is download -able	Embeddable in author's portal site, as is	Available in author's portal webGIS as layer service
Hazard	Water and Wind-related	Japan Meteorological Agency	High-resolution Precipitation Nowcasts	Yes	Yes	No	Yes	No
			Analysis & Forecasts of Precipitation	Yes	Yes	No	Yes	No
		Ministry of Land, Infrastructure, Transport, and Tourism	Slope failure Disaster Prone Areas	Yes	Yes	No	No	Yes
			Landsides Disaster Prone Areas	Yes	Yes	No	No	Yes
			Debris flow Disaster Prone Areas	Yes	Yes	No	No	Yes
			Flooding Disaster Prone Areas	Yes	Yes	No	No	Yes
		NIED: Storm, Flood, and Landslide Research Division	Precipitation intensity	Yes	Yes	No	Yes	*2
			1.5 hours working rainfall	Yes	Yes	No	Yes	
			72 hours working rainfall	Yes	Yes	No	Yes	
			24 hours working rainfall	Yes	Yes	No	Yes	
		NIED: Earthquake and Tsunami Research Division	Strong-motion Seismograph Networks: K-NET,KiK-net	Yes	Yes	Yes	Yes	*2
			High-Sensitivity Seismograph Network: Hi-net	Yes	Yes	Yes	Yes	
			Broadband Seismograph Network: F-net	Yes	Yes	Yes	No	
			Metropolitan Seismic Observation network: MeSO-net	Yes	Yes	Yes	Yes	
		NIED: Multi-hazard Risk Assessment Research Division	estimation of Seismic Intensity by Japan Seismic Hazard Information: J-SHIS	Yes	Yes	Yes	No	*3
	Snow-related	NIED: Storm, Flood, and Landslide Research Division	24 hours snow load by "Yukioro-signal" using numerical snowpack mode	Yes	Yes	No	Yes	*2
			30 days snow load by "Yukioro-signal" using numerical snowpack mode	Yes	Yes	No	Yes	
	Volcano-rerated	NIED: Volcano Disaster Resilience Research Division	Volcanic observation network: V-net	Yes	Yes	Yes	No	Unverified
		NIED: Volcano Disaster Resilience Research Division	Visualization system for Volcanic Activity: VIVA	Yes	Yes	Yes	No	Unverified
Risk	Water and Wind-related	NIED: Storm, Flood, and Landslide Research Division	Real-time flood/sediment disaster Risk Map	No	Yes	No	Yes	*2
		Japan Meteorological Agency	Real-time Landslide Risk Map	Yes	Yes	No	Yes	No
			Real-time Inundation Risk Map	Yes	Yes	No	Yes	No
			Real-time Flood Risk Map	Yes	Yes	No	Yes	No
Infra	Road Traffic	Expressway Company	Real-time traffic information service of the Metropolitan Expressway	Yes	Yes (schematic)	No	Yes	No
	Train Traffic	Railway Company	Train Status Information	Yes	Yes (schematic)	No	Yes	No
	Electric Supply	Electric Company	Electric Status Information	Yes	Yes	No	Yes, Partly	No
	Gas Supply	Gas Company	Emergency information service	Yes	No	-	Yes	No
			Gas Service Restoration Map	Yes	Yes	No	No	No
	Water Supply	Bureau of Waterworks	Water outage / Muddy water Information	Yes	Yes	No *1	Yes	No
		National Network for Emergency Mapping (N²EM)	Water supply support information	Yes	Yes	No	Yes	Yes
	Telephone Service	Telephone company	Landline construction / failure information	Yes	No	No *1	No	No
	Cellphone Service	Cell phone carrier A	service area map	Yes	Yes	No	Yes	Yes
			4G service restoration area	Unverified	-	-	-	-
			3G service restoration area	Unverified	-	-	-	-
		Cell phone carrier B	service area map	Yes	Yes	No	No	No
			4G service restoration area	No	Yes	No	No	*2
			3G service restoration area	No	Yes	No	No	
		Cell phone carrier C	service area map	Yes	Yes	No	No	No
			4G service restoration area	No	Yes	No	No	Yes *4
			3G service restoration area	No	Yes	No	No	

*1 Just copiable as text in incident occurred.
*2 Requires development for dynamic connection to database.
*3 Required manual operation.
*4 Will be activated during system failure.

https://www.jstage.jst.go.jp/article/jdr/16/4/16_676/_pdf

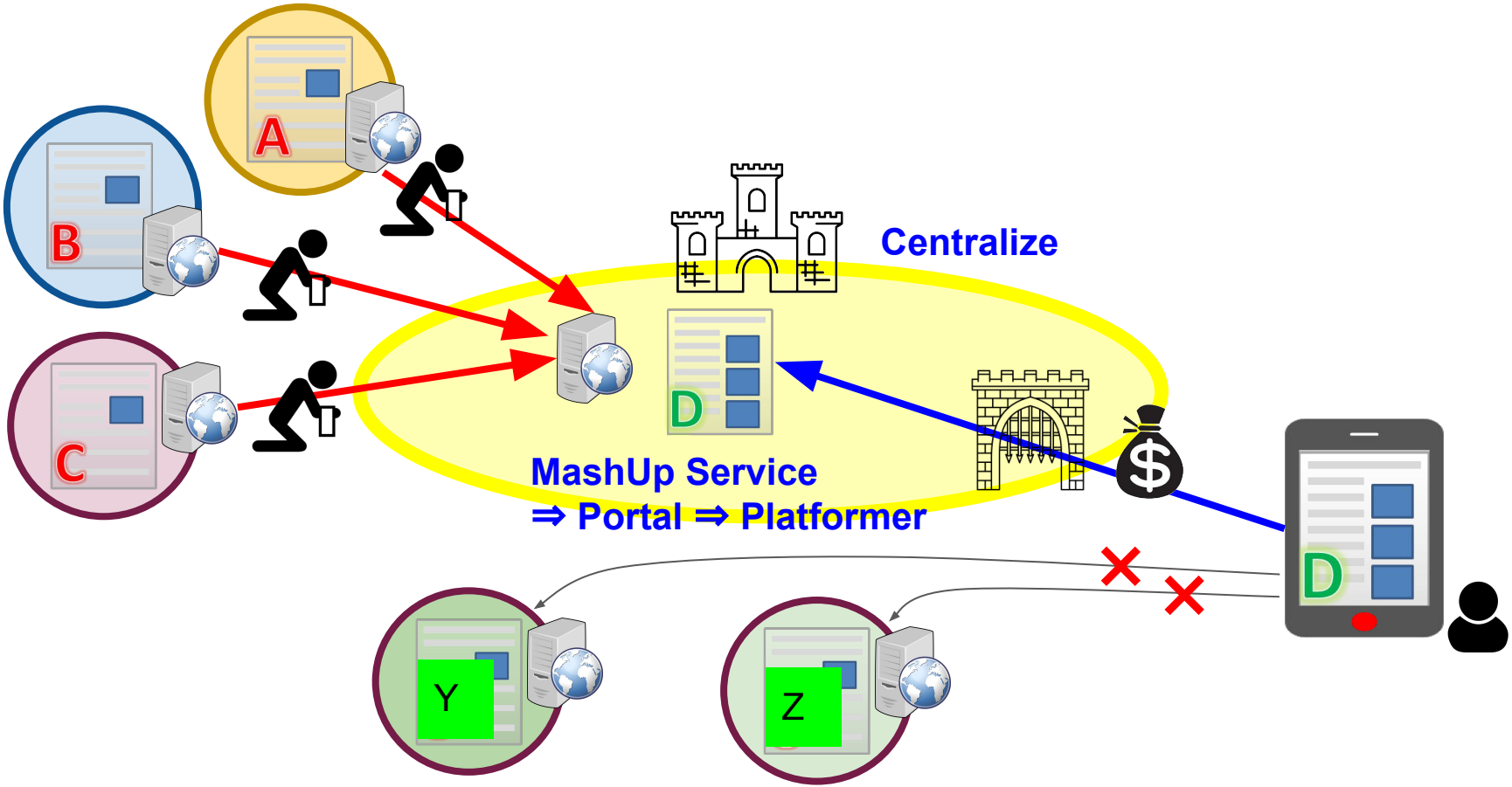
Current Situation of Disaster-Related Information - Silos



Various originators individually publish information on the World Wide Web.

Each originator builds a site on the World Wide Web, complete individually as a Web Map page. Ordinary users can only access each site to obtain information separately.

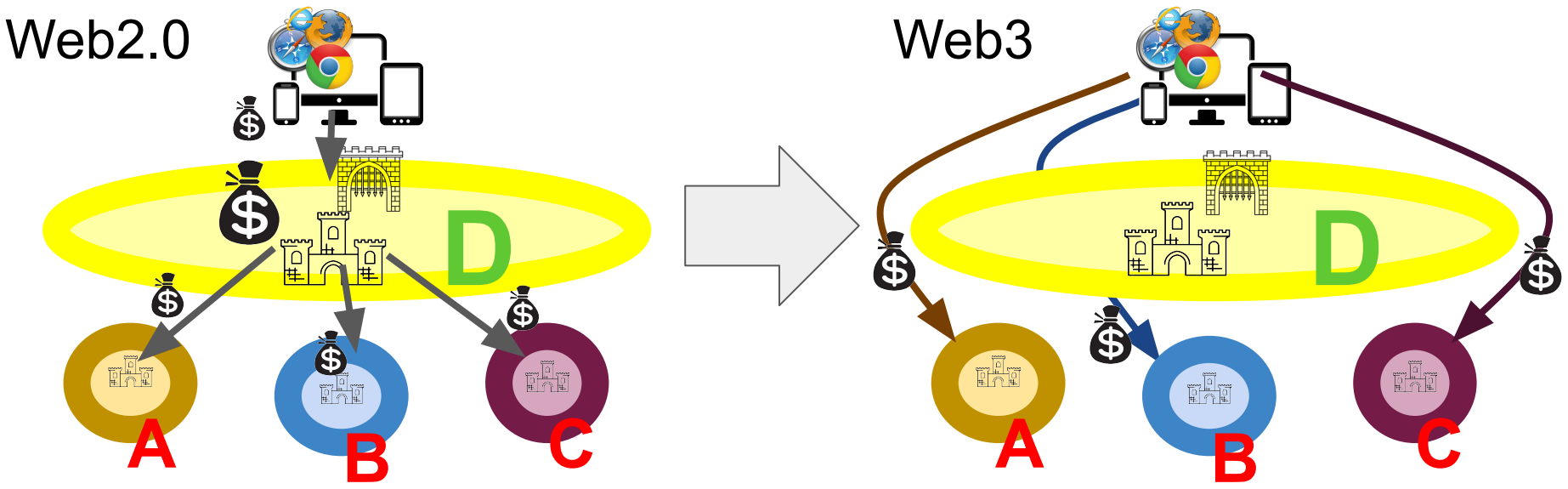
Limitations of Web 2.0



OSINT : Open-source intelligence for disaster response

Open-source intelligence (**OSINT**) is the collection and analysis of data gathered from open sources (overt and publicly available sources) to produce actionable intelligence. wikipedia

Does Web3 say it all about the decentralized Web? No.

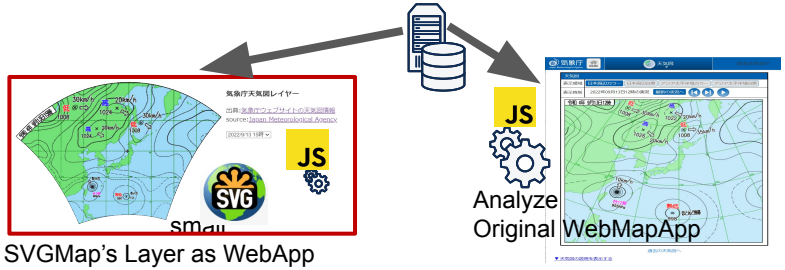


Where is MashUp?

Making existing stand-alone WebMap sites into an SVGMap layers

Repeat as many times as necessary.

Analyze the original site
Build the WebApp layer of the SVGMap



SVGMap's Layer as WebApp

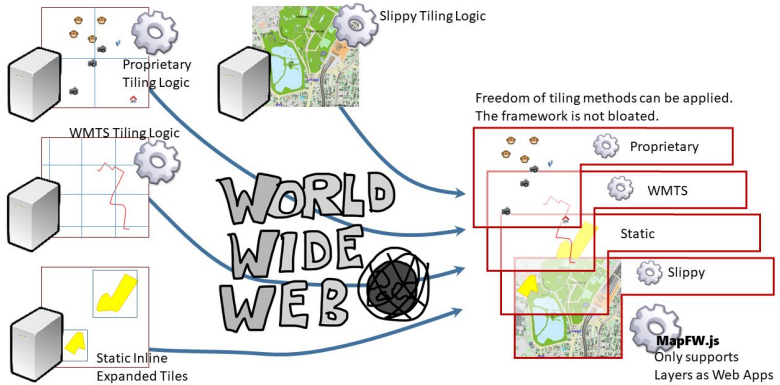
Features of SVGMap that supported rapid development keeping compact webApps

- Layers as WebApps architecture
- Highly flexible tiling framework

About to reach 800 Layers

Categhoty		Layers	Realtime-Update
河川災害	国土交通省～河川局	9	9
ライブカメラ	国土交通省～河川局	1	1
ライブカメラ	国土技術研究センター	2	2
気象・災害	気象庁	28	28
気象	JAXA	9	9
気象	yr.no	5	5
気象	JTWC	1	1
気象	Cyclocane	1	1
気象	NII	3	3
気象	NOAA	4	4
気象	海上保安庁	4	4
地震	気象庁	1	1
地震	防災科研	2	2
地震	USGS	2	2
地震	気象協会	1	1
ハザード	国土交通省～国土数値情報	20	
ハザード	国交省	13	
ハザード	地理院	295	
ハザード	地方自治体	56	
ハザード	etc	203	
ハザード	防災科研	72	
ハザード	G空間情報センター	6	
交通	国交省	14	14
交通	etc	4	4
Others		23	
geospatial processing		8	
basemap		8	
TOTAL		795	91

"Layers as Web Apps" that encapsulates a variety of tiling logics



De-centralized Disaster Management Web GIS Study Group

In recognition of this achievement, some core members of the disaster response community established a new study group in Japan.