



A STRATEGY PAPER FROM: **CENTER FOR  
DIGITAL  
GOVERNMENT**

# OUT OF THE CUBICLE AND INTO THE FIELD:

Mobility Matters in Extending Public Service Delivery



# INTRODUCTION

Dilbert is dead. The age of civil servants in fabric-covered cubicles is over. It is over because the public expects services to be delivered where and when they want them, anywhere at any time. It is over because the new generation of public servants will not work in the boxed-in confines of an Industrial Era workplace. It is over because governments cannot afford the legacy costs of delivering services by conventional means. It is over because mobile technologies are making mission-critical data (voice, data, video, maps) available on-demand and on-site through mobile devices and the networks that support them.

According to one industry forecast, most industries — including the public sector — will continue to move away from fixed, location-based work environments to a “dispersed mobile world where workers are deployed in the locations where they are most effective.”<sup>1</sup> This mobilization of the workforce is a result of decreasing costs and increasing availability of mobile devices. Other advances supporting this trend are the proliferation of cellular and Wi-Fi networks, improvements in the form factor (or the devices themselves), increases in broadband speeds and decreases in the costs of service plans.

Management of personal information such as e-mail, calendaring and contacts remains the most often used mobile application, but a recent survey found that it may soon be surpassed by access to the organization’s intranet and field data collection. Many organizations are planning remote access to their production-level enterprise applications such as customer relationship management, enterprise resource planning and supply chain management.<sup>2</sup>

This paper from the Center for Digital Government explores the drivers and benefits for going mobile in the public sector. It also includes success stories from early adopters, as well as suggestions for getting started.

## WHEN THE FORM FACTOR MATTERS

The old school design adage that “form follows function” remains largely true, but mobility’s imperative is that function can follow form if the form solves intractable problems or creates new opportunities. Indeed, the form factor is critical for mobility, especially when moving beyond traditional laptops mounted in government vehicles or lugged around by bureaucrats. Today’s mobility includes having computing power at your fingertips when your mode of transportation is a train, ferry, bus, car or even your own two feet. Handheld devices are wireless-friendly and more rugged than ever before. These attributes, as well as full QWERTY keyboards, touch screens, expanded data storage, integrated digital cameras and an increasing availability of

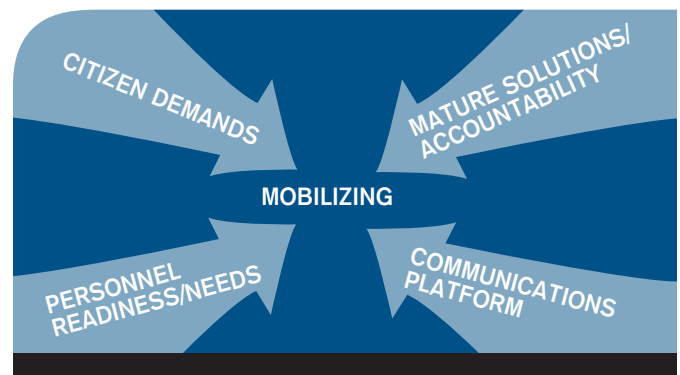
applications, make public servants with handheld devices more productive than ever in the field.

## REMAINING RELEVANT IN THE AGE OF MOBILITY

Today’s fast-paced, on-the-go lifestyle has changed how people do business with corporations and government alike. Families with working parents and kids with busy after school schedules, traffic, the environmentally inspired green movement and the trend to go online instead of waiting in line all contribute to our desire to obtain service as close to where we are located as possible. Visiting city hall or the government center has gone the way of the Sunday drive — becoming a quaint but distant memory. People also expect instant gratification. Government is beginning to feel the impact of these trends and that impact will only increase as the next generation begins using government services.

The federal government is already feeling pressure when customer expectations are not met, as evidenced by a drop in their e-government survey scores. The surveyors believe that “...private-sector Web advances, such as speedier software applications, and the increasing popularity of social networking and user-generated content are beginning to raise customer expectations in ways that the government will find difficult to match.”<sup>3</sup>

Additionally, gone are the days when newly-elected public officials or new hires had to be coerced into using the typically limited technology available to them for official purposes. Similarly, many of the long serving civil servants who resisted new technology have either converted or retired. Today’s public servants, whether elected or hired, are increasingly demanding modern technology tools — including handheld devices and remote access into the organization’s applications.



Case in point: when developing its IT strategic plan, the IT initiative most often identified as a top priority by departments in the city of North Las Vegas was establishing “virtual office” capabilities so that it could better serve its population of 145,000. It also finished first among enterprise-wide IT initiatives that will improve internal services. To the city of North Las Vegas, the

term *virtual office* “encompasses all efforts to provide remote access to city information and systems for city staff in a secure and easy to use manner when working in a location other than a city facility. It includes everything from field access for line staff to virtual office capabilities for executive staff.”<sup>4</sup>

The city of North Las Vegas gets it. It is laying the groundwork for increased mobility for its workforce. Many other jurisdictions have embraced mobility to improve service delivery, such as the city of London, in Ontario, Canada, (with a population of 350,000) where they envision a future that includes delivering much of their services via mobile devices. According to Jeff Fielding, chief administrative officer for the city of London in Ontario: “We believe the wireless handheld is where things were going in terms of improving people’s workflow. We saw it as a way to make ourselves a faster-acting organization and eventually transact much of the business conducted in the city this way.”

Similarly, the Washington, D.C. metropolitan region has made a commitment to mobility, having deployed a high-speed text alerting solution in the aftermath of the terrorist attacks of Sept. 11 to improve first responder communication, interoperability and public warning. By registering with the Washington, D.C. Emergency Information Center<sup>5</sup>, citizens, commuters and key businesses can receive notifications and alerts via e-mail, pagers and cell phones from the government during all-hazards incidents. The Washington, D.C. Emergency Management Agency (DCEMA) has been using the text alerting daily for more than two years during hundreds of emergencies, including the D.C.-area sniper attacks, the IMF and World Bank protests, a blizzard, a blackout and Hurricane Isabel.

## PUBLIC SAFETY PROVING GROUND

*“We’re a police force that’s using technology to adapt and communicate more efficiently for the community we serve.”*

**Sergeant Matt Jackson**

Oklahoma County Sheriff’s Office

First responders were first adopters, stretching mobile technologies’ capabilities to support service delivery in the field. These early adopters taught civilian government agencies much about the new dynamic of public service. Consider the city of London, Ontario, Canada where officers on foot, bicycle and motorcycles access the police department’s crime databases including their records management system from handheld devices. They believe that having access to information in the field allows them to make better decisions on the spot. Oklahoma County’s Oklahoma Sheriff’s Office, serving a population of 700,000,

agrees. Its officers also access law enforcement databases and conduct National Crime Information Center (NCIC) lookups in the field, even its mounted members on horseback. Handheld devices make it possible.

In 2005, the New York City Police Department issued handheld devices that permit officers in the field to check vehicle license plates and driver’s license records; run warrant checks through the New York Statewide Police Information Network (NYSPIN) and NCIC, as well as checking local databases and NYPD pistol license databases. It also provides mobile access to the department’s extensive domestic violence database. In addition, officers can retrieve photographs of bank robbers that appear on department wanted posters along with other relevant images.

Today’s mobile devices provide for field access that saves time while delivering more information than ever to workers in the field. Los Angeles Police Department officers are equipped with handheld computers to collect and upload traffic stop data, such as a motorist’s age and gender. Officers can also create and print traffic citations on mobile printers while in the field. Officers who patrol Los Angeles’s Jordan Downs area are using handheld facial recognition devices to help them enforce gang injunctions, trespass orders, and felony and misdemeanor arrest warrants. The officer captures a facial image of the suspect using the device, then the software in the device searches for matches in a database that also is stored in the device. This database contains photos of fugitive gang members that were taken when the individuals were arrested (such as booking photos). When the officer selects the most accurate match, he uses a side-by-side image comparison to decide whether the individual was correctly identified and, if so, insert copies of the images in the arrest report. This allows judges, attorneys, and juries to see the same images that the officer saw at the time of arrest.<sup>6</sup>

### EMERGENCY MANAGEMENT

Natural and manmade disasters such as Hurricane Katrina and increased incidents of severe weather and infrastructure failures have recently interrupted government service delivery with alarming regularity. Handheld and mobile devices ensure essential government services are available in emergencies and should be a critical part of a government’s disaster recovery or continuity of operations plans.

First responders are using mobile technology for vital, onsite access to hazardous material (hazmat) databases maintained by coast guards, railways, and other institutions. This type of access ensures that they have faster and simpler access to more accurate and current information in the field, which allows them to respond more effectively and safely.

Emergency teams for the Sikeston Department of Public Safety in Missouri were equipped with smartphones to receive accurate information about the dangerous chemicals onsite

when responding to a hazardous material spill. Emergency response personnel use an application that gives them access to online Hazmat databases maintained by the U.S. Coast Guard, the U.S. Department of Transportation and Energy and the U.S. Center for Disease Control. By keying in the chemical, teams can see the chemical properties of whatever has been spilled because they look directly into the agency's databases. Response teams can make onsite decisions about how to respond, what equipment to wear and how to keep people in the community and on the emergency teams safe.

Broward County, Fla. emergency response teams received handheld devices in 2004. If an emergency team member is onsite, at an emergency such as a hazardous materials spill, they can use their device to enter in the details. The information then goes directly into the database, where anyone with access to the server — including other field-based personnel deployed with handhelds — can run a query to find out what is happening at the location. Broward County used an intranet site to automate their emergency contact lists. While in the field, emergency team members can use the handheld's browser to access the link or store the information for ongoing use. After an emergency situation, damage reports are managed and sent via handhelds to headquarters so decision-makers can determine what resources to send out.

## GPS

Global positioning systems (GPS) are a mainstay of mobility for first responders, from emergency management services to helping ensure officer safety. When paired with other emerging technologies, GPS becomes an even more powerful tool. Take for instance the House Arrest Solution, which uses GPS in conjunction with an alcohol monitoring ankle bracelet. It is a totally wireless solution that tracks clients and monitors them continuously to improve public safety, all at a very low cost. Officers can see where participants in the program go at any time and receive automatic alerts when participants go into "exclusion zones" — areas determined off limits. This approach provides constant visibility and eliminates the need for officers to physically track participants.

There is often a trade-off in adopting new technology. For some officers, increasing safety sometimes comes at the cost of autonomy. When the Talladega, Ala. (with a population of 80,000) Police Department deployed a mobile GPS solution to track officers from managements' desktops, officers were troubled until the information collected was used to prevent unfair punishment. Talladega PD uses the GPS solution to support testimony regarding car chases and other police pursuits. They are able to display a map or computer generated drawing displaying the route taken and how fast officers were

driving. They also use it to respond to citizen's complaints about officers' speeding or a lack of patrol in an area.

## GOVERNMENT SERVICE SUCCESS STORIES

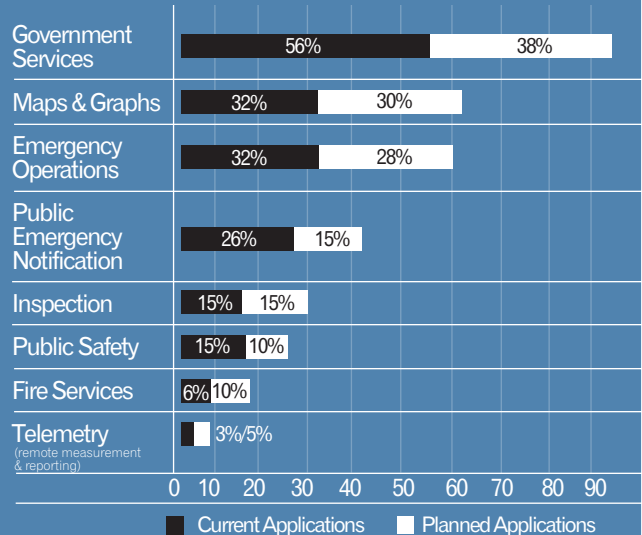
*"One of the biggest advantages of today's mobile solutions is two-way functionality. We can access records and maps in the field and automatically update information in our back-end databases. It is a huge time saver."*

**Jess Hansen**, GIS Coordinator  
Whitfield County, Ga.

Following the lead of first responders' use of mobile technology, civilian government agencies are using mobility to improve their delivery of service. From everyday forms to executive dashboards, the new digital platform extends public servants' reach in the delivery of routine services in the communities they serve and provides unprecedented flexibility and capacity. Service delivery is no longer bound by place because of increased bandwidth and ever expanding access to data. Even simple applications such as a wireless phone directory for city employees makes public servants more effective in the field.

While personal information management such as e-mail and advanced calendaring (including scheduling follow-up meetings remotely) remains the most frequently used mobile

### DEPLOYMENT OF FUNCTION SPECIFIC APPLICATIONS IN GOVERNMENT SERVICE DELIVERY



Source: In-Stat, 2/07

application in the field, intranet access, field data collection and customer relationship management round out the top four applications currently in use by all industries, including public sector. When asked about their plans for mobile access, the same survey respondents ranked intranet access first, followed by field data collection, then personal information management, and customer relationship management. Access to robust systems such as supply chain management, enterprise resource planning and custom applications rounded out the top seven in each survey.<sup>7</sup> Mobility also holds the promise of productivity gains for field workers in terms of way-finding (directions and location tracking via GPS), retrieving back-office data and making real-time updates (as opposed to the conventional practice of relying on periodic updates at the end of the day, week or even month).

## HEALTH CARE

Mobile technology is helping to improve the delivery of health care and in some cases, save lives. Transplant coordinators in California's Transplant Donor Network use smartphones with critical care nursing software to determine drug incompatibilities and treatment protocols for transplant patients. They have access to the most up-to-date medical information available, allowing them to deliver care when and where it is needed during the urgent minutes that come with organ transplant.

The Department of Aging Services in Hillsborough County, Fla., uses the GPS reporting features of their handheld devices to assist with driving directions and mileage when delivering services to the elderly. Soon, it will use the time and task features to capture the time it takes for each task such as personal care and meals to produce more accurate billing and time sheets. Their 80-plus meal delivery drivers, case managers and site coordinators consider the GPS capabilities of their devices a safety measure too.

## FIELD SERVICE

Since the conventional approach to building inspections and permitting services are labor-intensive, government agencies are increasingly deploying mobile applications to extend the capacity and productivity of their field personnel. For instance, the city of Nanaimo in British Columbia, Canada took advantage of its mobility infrastructure to deploy a new application that looks up inspection details on a property, captures data, automatically updates back-end databases, reports findings, and print reports — all from the field. Inspectors also view their schedules remotely, eliminating the need to stop by the office. Customer service is improved too because inspectors can now schedule return visits on the fly so owners no longer need to call in to the office to schedule an appointment.

Tempe, Ariz.'s Salt River Project is the nation's third-largest public power utility and home to roughly 4,400 employees. The

organization first deployed handhelds in 2000, with its first application deployment in 2005. The organization uses the smartphones for emergency and real-time communications, dispatching of work orders and real-time processing of orders. Plans for subsequent upgrades include on-call notifications and scheduling, GPS and live GIS data.

Whitfield County, Ga., also uses mobile technology to support their storm water system data collection and evaluation. It incorporates GPS and has tied their application into their geographic information system (GIS). With this approach it can look up and capture data in the field, accessing both database records and maps.

Code enforcement in the Whitfield County's building and zoning department is currently using handheld devices for all site visits in order to map placement and status of erosion and sediment control devices and code violators. Inspectors use handheld devices with GPS and GIS integration to access database records and display maps in the field. They can even conduct queries against the databases and produce maps on the fly for accurate and up-to-date erosion and zoning code information.

## GOVERNING IN THE MOBILE ERA

*"If you provide frontline people with information to make decisions, they'll probably make better decisions — safer ones."*

**Eldon Amoroso**, Senior Director, Support Services Division,  
City of London, Ontario, Canada

Trends are converging — the size of mobile devices is decreasing and functionality is increasing, while government agencies are expanding their adoption and use of mobile solutions. This convergence will result in a dramatic improvement in service delivery. The impact on government agencies is already being seen with increases in productivity and efficiency, reduction in costs and improved data collection and accuracy.

To be clear, the impact of mobility on the nature of work is just beginning to be understood. For its part, Forrester Research has summarized the options and the infrastructure that will be needed to make it real.

These benefits do come with a cost. Government IT departments will be strained to meet the demands of mobile government and government leaders will be challenged to adapt traditional bureaucratic practices to the mobile era. Security will remain a significant challenge with the loss of mobile devices and the confidential data they store keeping IT directors up at night. Government agencies will struggle

with staffing to support any time and anywhere access for employees and service delivery to citizens.

	TYPES OF APPLICATIONS	TYPES OF DEVICES	TYPE OF USE
Mobile Task Worker	Line of business	Ruggedized PCs & Handhelds	Constant
Information Worker	E-mail & calendaring	Smartphones & PDAs	Frequent
Casual Mobile Worker	E-mail, calendaring, & occasional line of business	Inventory tracking, supply train management	Occasional
Temporary Worker	Line of business	Field service	Frequent or Constant
Instrumented Enterprise	Line of business	RFID tags, GPS tracking, remote monitoring	Application Dependant

Source: Forrester Research, Inc.

### ATTRIBUTES OF MOBILE DEVICES

Mobile devices, especially handheld units, provide an intuitive, all-in-one package that can deliver personal information management tools such as e-mail and calendaring, Internet access, as well as secure data access and communications. People, particularly today's youth, are already familiar with them, reducing training requirements and making adoption easier. Converging functionalities (phone, e-mail, Web, camera, GPS) coupled with lower cost and longer battery life make smartphones a compelling alternative to traditional laptops for use by government workers who walk, bike and even ride horses when performing their job duties.

Many end users already have them, so the same platform can be used for deployment of applications, with security built into the network. Leveraging an existing investment in handheld devices is particularly attractive to smaller government agencies who wish to take advantage of mobile solutions but lack the means to deploy their own wireless infrastructure.

### NEXT GENERATION GOVERNMENT WORKERS

The *Washington Post* reports that the federal government's Office of Personnel Management estimates 60 percent of the government's 1.6 million white-collar employees and 90 percent of about 6,000 federal executives will be eligible for retirement over the next 10 years. The next generation of government workers — the Millennial generation that will replace the graying workforce of today — is raised with cell phones, e-mail, instant and text messaging, iPods and social networking, and

will demand the same level of professional flexibility and social balance that governs their entertainment choices.

Recent surveys show that teens and college students are the most active cell phone users, with use progressing beyond making calls and sending text messages to include downloading personalized content.<sup>8</sup> Devices like the Firefly introduce children as young as five years old to mobile devices. With a slogan of "The mobile phone for mobile kids," today's children grow into adults who demand immediate contact with each other and information at their fingertips, wherever and whenever. These young people are the next generation of government workers, as well as consumers of government services. They have never known a world without computing power. They use technology in most aspects of their lives and constantly push for more content and functionality, and it is in this same manner that they are preparing to take older generations' place in the workforce.

Today's youth also live online like never before. Recognizing the truth in the old advertising adage that says, "To be effective, you've got to connect with people where they live," the Council for Excellence in Government (CEG) — a national, nonprofit, nonpartisan organization that works to improve government performance at all levels, increase citizen participation, and attract talented young people to government — launched YoungFeds.org. Touted as "the closest thing that young federal professionals have to Facebook and Friendster," it is an online community for federal workers, ages 35 and younger, to network to advance their careers and public missions.<sup>9</sup> CEG gets it.

The next generation will be more at ease than past generations with using technology to deliver public service close to the customer, any time and anywhere. At the same time, they will expect more access, more bandwidth, more content and more functionality than past generations. Until recently mobile devices provided neither the computing power nor the memory capacity to effectively provide wireless access to information systems, and network speeds were insufficient for the task. But times and capacities have changed. Today's handheld and mobile devices offer the power and speed to satisfy the Millennials.

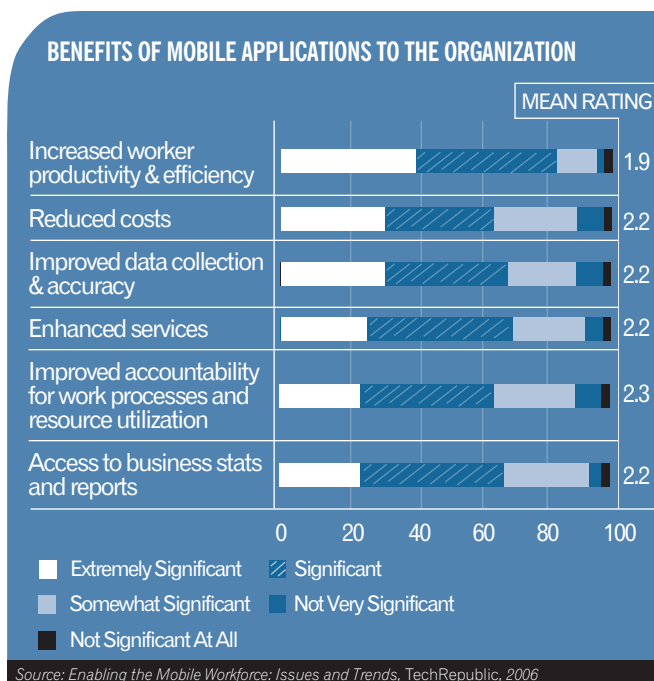
### BENEFITS OF "MOBILIZING"

A recent survey found that organizations are already reaping the benefits of mobilizing. The most often cited benefits include:

- Increased productivity and efficiency,
- Reduced costs,
- Improved data collection and accuracy,
- Increased accountability for work processes and resource utilization, and
- Remote access to business statistics and reports.<sup>10</sup>

Providing mobile applications to government workers ensures that they have immediate access to time sensitive, up-to-date information. Mobile solutions provide field data entry, eliminating the need for batch entry, saving time and labor, while improving accuracy since workers no longer have to write down information in the field to be entered into a system at a later time.

With the proliferation of mobile devices and a growing number of mobility-aware applications, government workers are able to respond more quickly with better information in the field, improving their responsiveness, decision-making and, sometimes even their own safety.



## GETTING STARTED ON MOBILITY AS A PLATFORM

It is reasonable to expect that you probably have one or more mobile devices on your belt or in your handbag right now. You already have a sense of how they have changed your work life. You may now be wondering about how those changes can be applied to a public agency. The first step is to analyze your environment and needs. Consider the following baker's dozen of questions as a checklist to move toward mobility:

1. What work is being done in the field? What else could be done?
2. What level of "field automation" is in place today? What is already planned or under development?

3. Where are our pain points, such as service delivery bottlenecks, high level of complaints or employee frustrations?
4. What is important to our community?
5. Who will be using mobile solutions and what is their level of expertise or familiarity?
6. What existing infrastructure and systems are in place that we can build upon?
7. What systems should integrate with mobile solutions?
8. What communications assets are available to us, both public and private?
9. What has already been done successfully by government agencies similar to us?
10. What solutions have already been deployed successfully?
11. How will we support mobilizing?
12. What delivery model will we use: centralized, decentralized, or hybrid?
13. Where do we begin?

Look around, learn from your peers and ask advanced users in other sectors (and even industry players that are taking mobility innovations from the laboratory onto the streets). Leading agencies are now mobilizing and realizing the benefits beyond voice and e-mail communications. For many, the next frontier is about access to critical information, from virtually anywhere at anytime. Don't get left behind in your cubicle.

Dilbert isn't dead after all. He's just been freed from his cubicle to get some work done where it really matters — on the ground and close to the citizen.

## ENDNOTES

- <sup>1</sup> Insight, *The Mobile Workforce and Enterprise Applications 2007 – 2012*, <<http://www.insight-corp.com/reports/mwf.asp>>
- <sup>2</sup> <<http://www.insight-corp.com/reports/mwf.asp>>
- <sup>3</sup> <<http://www.washingtonpost.com/wp-dyn/content/article/2007/03/20/AR2007032001338.html>>
- <sup>4</sup> Results of City of North Las Vegas Departmental and Cross Functional IT Strategic Planning Sessions, The CIO Collaborative, June 2007
- <sup>5</sup> <<http://alert.dc.gov>>
- <sup>6</sup> <[http://www.ncjrs.gov/ccdo/in-sites/law\\_1.html](http://www.ncjrs.gov/ccdo/in-sites/law_1.html)>
- <sup>7</sup> <<http://www.insight-corp.com/reports/mwf.asp>>
- <sup>8</sup> <<http://www.clickz.com/showPage.html?page=3530886>>
- <sup>9</sup> <[http://goliath.ecnext.com/coms2/summary\\_0199-6227167\\_ITM](http://goliath.ecnext.com/coms2/summary_0199-6227167_ITM)>
- <sup>10</sup> <[http://www.sybase.com/content/1039895/workforce\\_mobility\\_032006wp.pdf](http://www.sybase.com/content/1039895/workforce_mobility_032006wp.pdf)>

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