

# AT THE TOUCH OF A BUTTON

How Alltel Wireless and frog design introduced a welcome dose of simplicity to the mobile space, making in-context, on-screen data access easier than ever before.



## Background

As owner and operator of America's largest wireless network, Alltel has long held the support of its 11 million users by the strength of its communication services. But the company was looking to do more than simply evolve existing offerings; it wanted to change the industry itself, moving the mobile device into a position of greater centrality in the lives of its users. While mobile functionality had been increasing steadily for a number of years, adoption rates among users remained somewhat low. New applications were going undiscovered, high-level capabilities ignored in the face of the phone's more traditional feature set: address book, direct calling, and SMS textmessaging.

Riding a train across South Korea in the winter of 2005, three Alltel employees envisioned a unified wireless experience that was focused on the idea that customers should have control over an integrated voice and data experience. With these principles in mind, Alltel sought the strategic expertise of frog design, inc., eager to steer customers towards increased customization, data usage, and discovery. Alltel envisioned a world of seamless connectivity between its consumers and the information they want most, and tasked frog with generating viable new business concepts that would accomplish this goal.

## Research

To understand the values, needs, and aspirations of consumers in the mobile space, frog's analysts pored over Alltel's user research and conducted in-store interviews with retail managers and customers alike. They asked questions and fostered discussions to identify the unmet needs, frustrations, and desires of consumers living and working within the present market. They examined consumers' use patterns to prioritize existing features, identifying the primary, secondary, and tertiary mobile tasks that users perform.

Expanding beyond this individual consumer focus, frog assessed the broader trends at play within the industry. Newcomers to the mobile space indicated a growing emphasis on customization, consumer access to personal media and online data, and social networking capabilities. In each case, a trend that had begun in the online, PC ecosystem was making the jump to the mobile handset. frog began looking more closely at trends in the digital content space at large, considering how Web 2.0 concepts might be applied to the mobile space.

## Conceptualization

frog's team combined this research with its existing industry knowledge and identified several areas of opportunity for Alltel Wireless and its customers. By considering the most effective features of the existing market and imagining new possibilities, frog set about re-envisioning the mobile landscape. Nearly a hundred ideas were generated for new and improved services, from the most basic additions to the wildest evolutions. All considerations were evaluated against a series of four success criteria, developed by frog and Alltel to ensure that the winning concept would be Monetizeable, Deployable, Innovative, and Delightful.

frog narrowed down its original list and worked closely with Alltel to select the final candidates for review. The top three suggestions were then explored further with storyboards,

visual renderings, and strategic analyses. Together, frog and Alltel reviewed the research findings, technological explorations, existing Alltel phones and capabilities, user opinions and scenarios, and more. They refined design concepts on the spot, assessed their merits in terms of both enterprise and general consumer benefits, and decided upon a single course of action.

**Widgetization of the Mobile Device**

The winning concept takes its inspiration from the business model of the personal computer, mirroring its evolution from single-function device to information portal. The advent of the Internet and other digital technologies had transformed the computer from word processor to information gateway. New capabilities linked the PC to a user's other electronics, making it the hub of an individual's digital world.

frog recognized the opportunity to move the mobile device into a similar position, establishing its place as the primary access point for in-context, always-there data services. Internet connectivity had already brought online information to the phone, but the user interface had been slow to adapt, making instant, relevant data retrieval too cumbersome.

For the PC, information portals and desktop widgets had provided simple navigation in the face of expansive content, bringing users immediate updates on the topics of their choice. Now, frog and Alltel would create a platform for widgets in the mobile space, "Celltop" screens that would provide a shortcut to users' top content, from personal stocks to the SMS inbox, from local weather to the latest sports scores. Unlike other content-centric interfaces, Celltop would provide direct access both to external content and traditional handset functionality, an integration that marks a major evolution in handset applications. And rather than forcing consumers to scroll menus, type search terms, and await connection, Celltop would bring this information to a user's screen with one touch.

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Simple access screens free users from additional navigation.

Additionally, the Celltop application would provide a platform for a fresh industry service model. Alltel would enable third party developers to create their own Cells for purchase on the handsets – fostering industry innovation, opening a new application market, and creating a revolutionary model of mobile data access. For Alltel itself, the new platform would boost data usage, upgrades, and customer loyalty, increasing revenue and supporting the company's vision of customer choice and control.

**Making it Happen**

True innovation requires more than good ideas; it demands effective execution. To ensure that Alltel would be the first major wireless carrier to introduce a widget dashboard to the mobile device, frog and Alltel set an incredibly fast timetable for implementation, moving Celltop from design to delivery in just twelve months.

Service providers like Alltel rarely create their own branded applications. Traditionally, small mobile application vendors or the Original Equipment Manufacturers (OEMs) who build the phones generate standard working applications, which are then licensed and re-skinned for the individual service provider prior to sale. This system results in a change-resistant market, in which fashion, rather than functionality, offers the key differentiator between offerings. By taking

Celltop into its own hands, Alltel would gain more control over its application's usability and a distinct edge over its competitors.

Because little precedent existed for this provider-driven design process, frog conducted an extensive technical analysis to locate the technology platform best suited to the goals, needs, and constraints of the Celltop project. Researchers analyzed disparate platforms and delivered a whitepaper to Alltel, outlining the pros and cons of the various options and offering one final recommendation: QUALCOMM BREW and uiOne.

The initial Celltop concepts were like nothing the industry had seen before, and Alltel challenged frog to build working prototypes as proof that the vision could be realized on existing hardware. The company gave frog several Motorola RAZR V3c devices and a 90 day timeline to make it happen.

frog engaged the software services of its partner company, Aricent, to take the project to the next level. An expert in the field of communications software, Aricent was instrumental in helping frog create an initial working prototype on the QUALCOMM interface. Taking advantage of Aricent's existing skill set in mobile application development meant that it was possible to validate ideas immediately, without the need for more extensive development research. The choice to work directly on the application platform so early in the design process was a departure from the conventional design workflow. By foregoing the traditional first step, the Flash animation model, frog and Aricent were able to undertake design, development, and testing in a fully integrated manner. The lasting strategic relationship between the two companies allowed each to make use of the other's areas of expertise throughout the Celltop project, balancing the front-end and back-end coding necessary for this stream-

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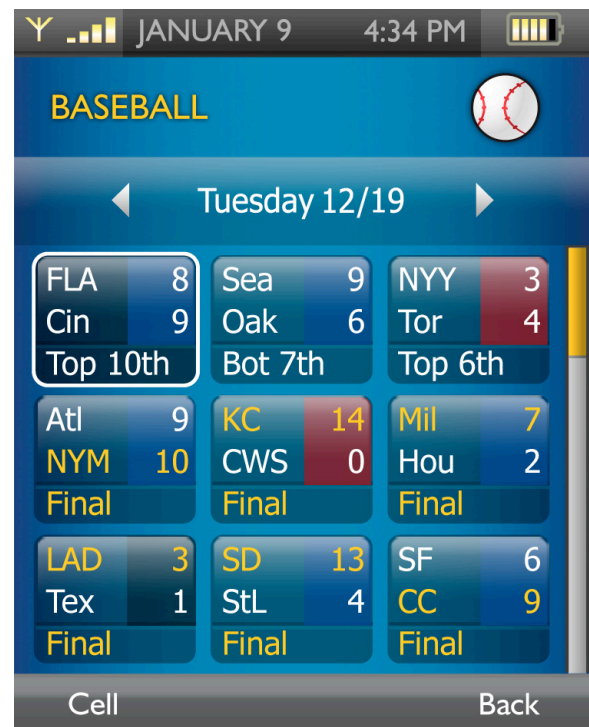
lined prototyping and ultimate fabrication. The result was a high level of production that secured key stakeholder commitment every step of the way and accelerated Celltop's time to market.

In addition to Aricent, the OEMs and QUALCOMM agreed to participate in this early development process, working together with frog technologists and designers to transform

the team's early renderings and wireframes into a functional application model. The resulting prototype served as a proof of concept, demonstrating Celltop's commercial feasibility to all entities. Shortly after the delivery of this first prototype, Alltel's executive team gave the project the green light.

### Designing Celltop

frog used its prototype not only to gain support within relevant organizations, but to fine-tune the design itself. In focus groups and user testing, the prototype received overwhelmingly positive reviews, its intuitive navigation and customizable interface scoring highly amongst consumers. Features were adjusted in accordance with user feedback, technological constraints, and client input, and a Cell template confirmed.



One click brings the week's schedule front and center.

The Celltop design system was created specifically to communicate the Alltel brand attributes of reliability, simplicity, and service. All screen types, layouts, nomenclature, animations, and icons were designed and documented to provide high-fidelity graphics and clear, on-brand direction to the user. To further differentiate the platform, a new font renderer was developed for the BREW platform, improving screen readability and aesthetics within the Celltop application. Through the close collaboration of designers and technologists from frog, Aricent, QUALCOMM, and the OEMs, a

series of controls and interaction patterns were developed to guarantee maximum usability, establishing consistency across Cells, regardless of the individual content. All visuals, interactions, and code were tested extensively and adjusted as necessary to ensure accuracy across handsets.

Each Cell offers a half-screen column of graphics, text, and imagery – the order, appearance, and content of the Cells adjustable by the user. Users are free to re-order the individual Cells, as well as to select their own background color from within the full spectrum of possibilities, controlling the look and feel of Celltop entirely from the handset itself. Additionally, the application stores a user's location and preferences, updating the relevant Cells when accessed. Navigation within each Cell works by progressive disclosure, releasing increasingly detailed content with each subsequent click. For example, a user selecting the Pro Baseball Cell can click once to view a weekly game schedule full-screen, then click again to access a specific game's scores and stats. Attention was paid to every aspect of the user experience, ensuring rich aesthetics were balanced with high functionality; great interactions with effective performance. The resulting concept and design have several patents pending on behalf of Alltel and frog design.

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"Celltop lets consumers make greater use of their mobile devices by accessing, at a glance, the information they want most," said Mark Rolston, senior vice president of creative of frog design. "At heart, these devices are about speed - speed of communications, speed of information. Celltop delivers content more efficiently, and more beautifully, than ever before."

frog also worked closely with Alltel to develop the name and identity for Celltop. An application logo was created that incorporates the traditional brand colors and typeface in a new way, the double "l" of Celltop serving as a visual reminder of the Cells themselves.

#### Industry Collaboration

frog facilitated close collaboration between key players throughout the Celltop development process. Each company involved was essential for making the Celltop application

possible, each one expanding and tailoring its own unique technology to create a working system. Phone calls, emails, and meetings occurred on a near-daily basis in order to facilitate information exchange, prioritization, and troubleshooting. In some cases, physical handsets were actually shipped back and forth, with modifications made by each party. The players are as follows:

#### Original Equipment Manufacturers (OEMs)

OEMs produce the hardware for all mobile devices. Throughout this project, frog and Alltel worked closely with a number of OEMs, including Motorola, LG, and Samsung, to ensure that all Alltel phones could be equipped with Celltop by the end of 2007. In order to facilitate data access between the Celltop application and other, native mobile applications, such as SMS text messaging, the OEMs expanded and adjusted their existing operating systems, a rare occurrence in this industry.

#### QUALCOMM

QUALCOMM is the company responsible for the application programming interfaces BREW and uiOne, in which the Celltop technology was developed. Because each OEM runs a slightly different operating system, BREW provides a platform for programmers to develop a single application (in this case, Celltop) that can operate across multiple handsets without requiring unique code for each OEM. QUALCOMM offered consistent programming assistance to all parties, adjusting its platform where necessary to facilitate development of the new application.

#### Aricent

Communication software company Aricent designed, developed, and tested much of the platform's back-end coding in BREW. This allowed frog to focus its energies on the front-end user interface of the application, the aspect with which the consumer would engage directly. Aricent produced the core of the Celltop platform, fashioning the reusable programming elements and behaviors that would run the application, while frog's in-house technologists created the Cells themselves (in uiOne). This collaboration spanned the whole of the Celltop project, from prototype to production.

#### Content Providers

For external data access – those pieces of information that would stream from online sources – frog and Alltel solicited the help of the content provider Motricity, who agreed to aggregate Celltop's online content and convert it to an appro-



Streamlined information access was made possible with broad industry collaboration.

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A software development kit (SDK) created by frog design provides a simple platform on which third party developers can generate future Cells, which will be accessible via catalogue on the individual handsets. The catalogue, developed in mShop by QUALCOMM, will handle the selection and delivery system for all new Cells. QUALCOMM will also manage third party development, ensuring that these new Cells comply with existing standards, technologies, and certification requirements. Additional Cells are already in development for release later this year, including media access points, location based services, and more. New versions of BREW and uiOne, handset updates, and user feedback will allow further improvements in the future.

appropriate mobile format. Further partnerships were developed around specific Cell content, such that news would be provided by the Associated Press, sports information by STATS, Inc., and up-to-the-minute forecasts by AccuWeather.

### Celltop, Now and in the Future

The first iteration of Celltop was released on the Samsung u520 on January 18, 2007, with implementation on numerous other handsets within the following six months. By working with a variety of OEMs, Alltel will offer its customers their choice of form factor and price point. By the end of this year, Alltel Wireless plans to have Celltop running on every handset it ships – placing the technology firmly in the hands of millions.

“Wireless carriers have been trying to solve the content discovery and navigation problem for years, and we are proud to be the first wireless carrier to deliver a technology that provides a solution,” said Scott Moody, director of data services for Alltel Wireless. “With its modular cells and easy navigation, Celltop will change how our customers discover content and connect to information.”

The initial release offers a series of ten free Cells that provide easy access to basic features like call history, ring tones, and inbox, as well as more entertainment-driven content such as stocks, sports, weather, and rodeo.