



THE GIGABIT CONNECTION



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an emotive
network for
families

aura

a sense of presence

aura
AN EMOTIVE NETWORK

This integrated service and application system brings family members a continuous sense of awareness and inclusion in one another's daily lives, whether they are living in the same household or hundreds of miles apart. The system also provides a collective space to create, share, and store memories in the form of photos, videos, drawings, voice messages, and text.



How can pervasive computing
enhance
family connections



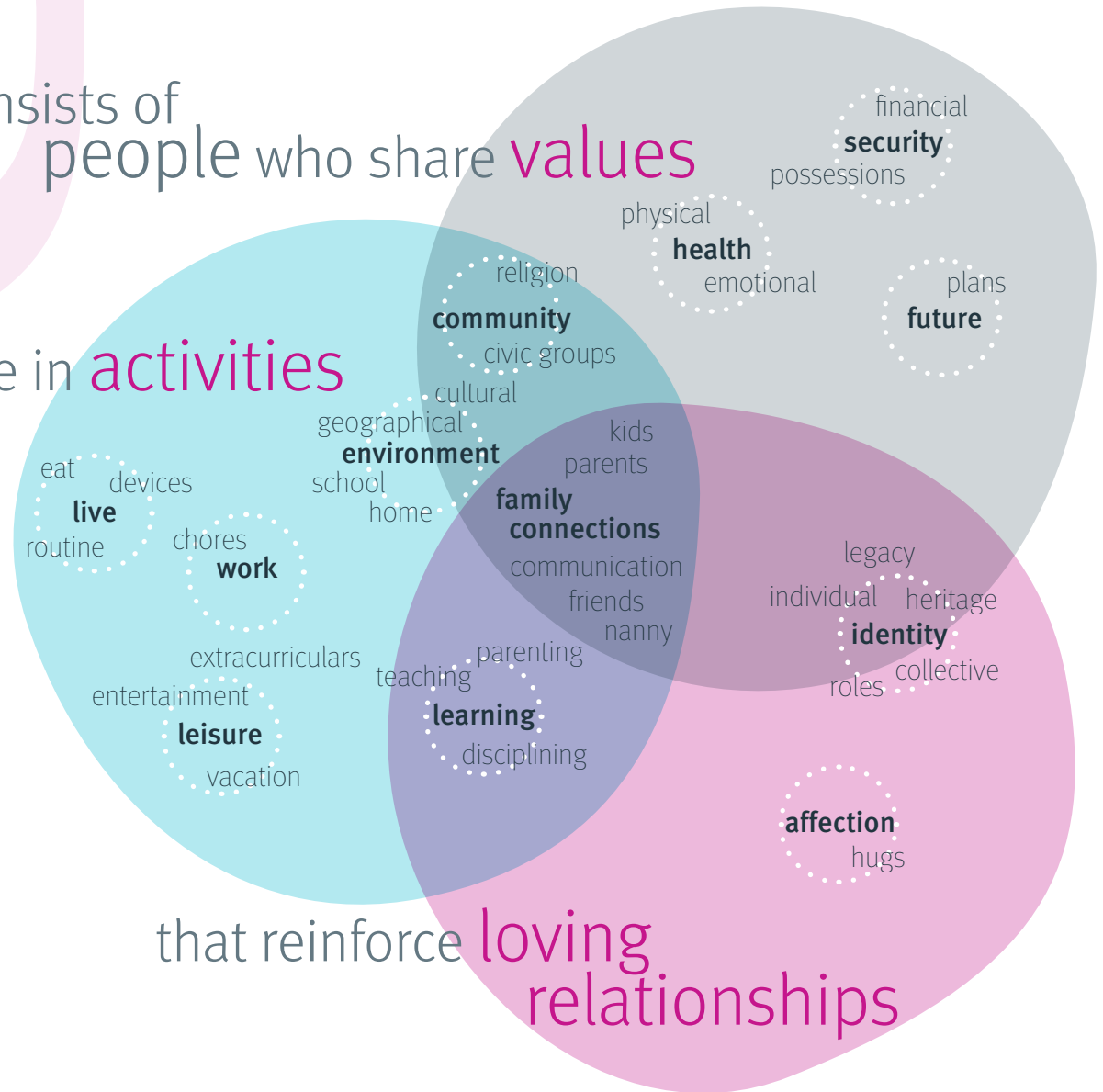
project definition
FAMILY CONNECTIONS

Our team chose to focus on how families might experience richer connectivity through pervasive computing and unlimited bandwidth. It was our hope that technology could be used to help families feel closer and span both physical and generational distance.

family consists of people who share **values**

and engage in **activities**

that reinforce **loving relationships**



territory map

DEFINING FAMILY

In order to design for enhanced family connections, we constructed a shared definition of family: people who share values and engage in activities that reinforce loving relationships. This became a territory map identifying all the areas and issues to explore in our research.

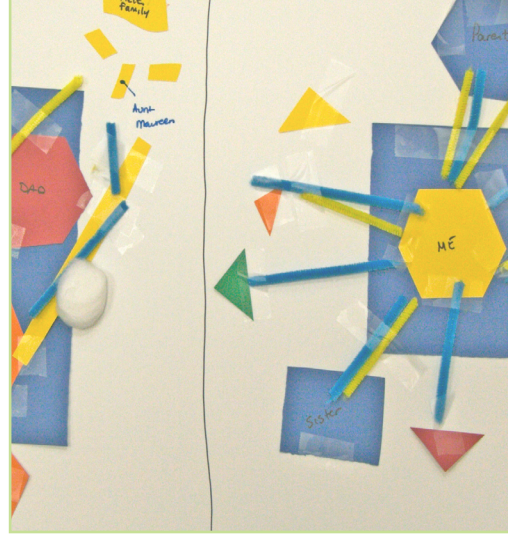


EXPLORATORY RESEARCH

How can the things people say, make, and do tell us about family connections?

METHODS:

observation
touchstone tour
directed storytelling

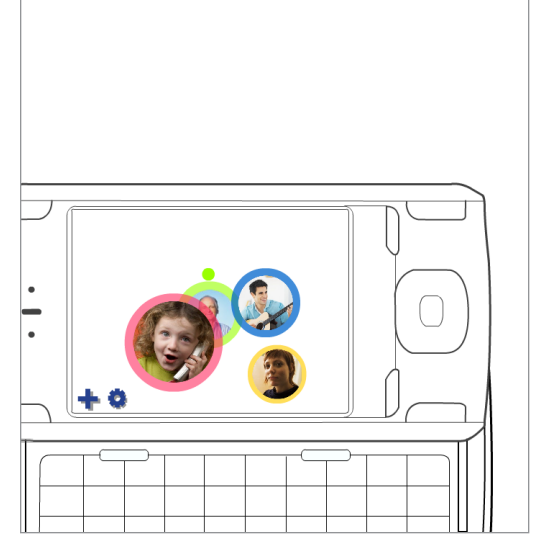


GENERATIVE RESEARCH

How can participatory design methods provide us with insights into what enhanced family connections should be like?

METHODS:

camera & diary study
multi-sensory collage
card matching



REFINEMENT

How can we create a more meaningful and usable design based on people's feedback?

METHODS:

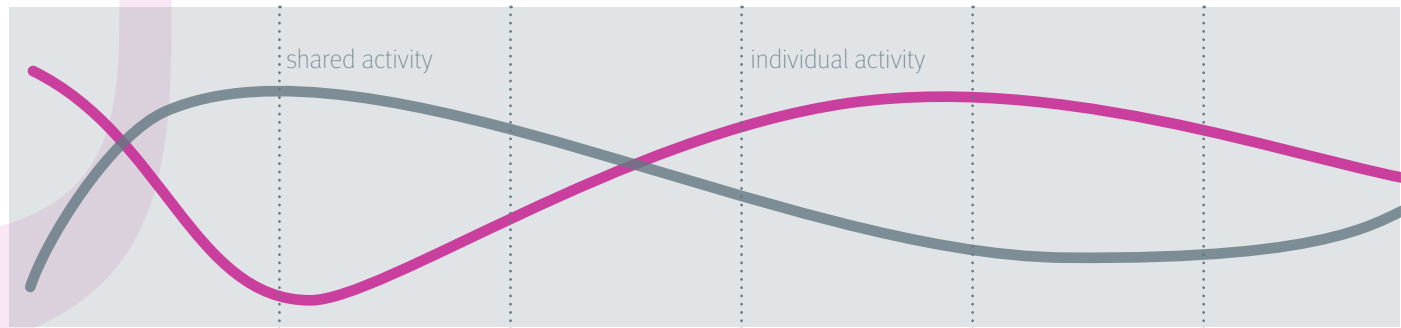
paper prototype testing
flash prototype testing

research overview

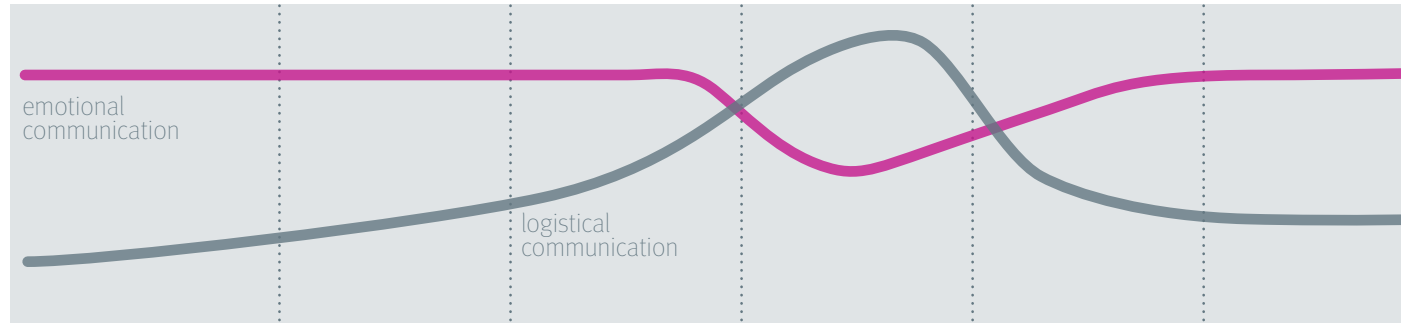
PHASES & METHODS

Our design was developed as a result of extensive research. This research was conducted throughout each phase of the project, from exploration and concept development to refinement and evaluation.

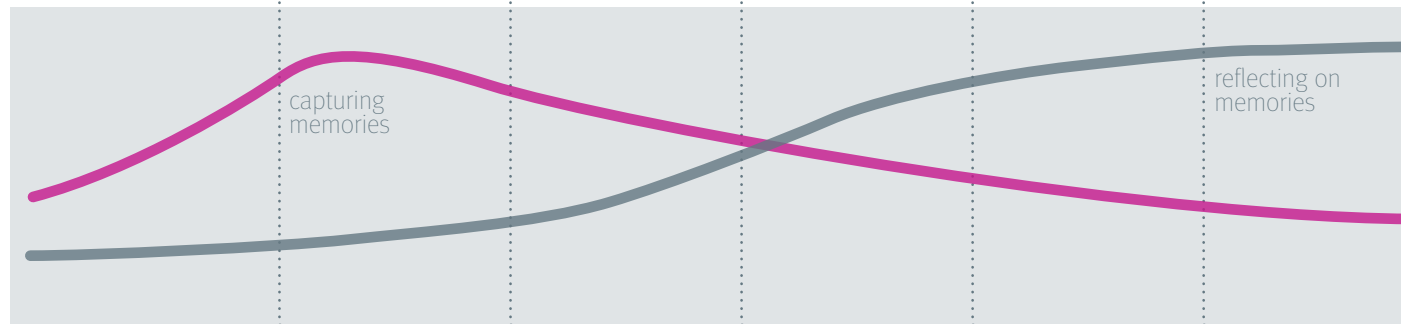
individual vs. shared activity



emotional vs. logistical communication



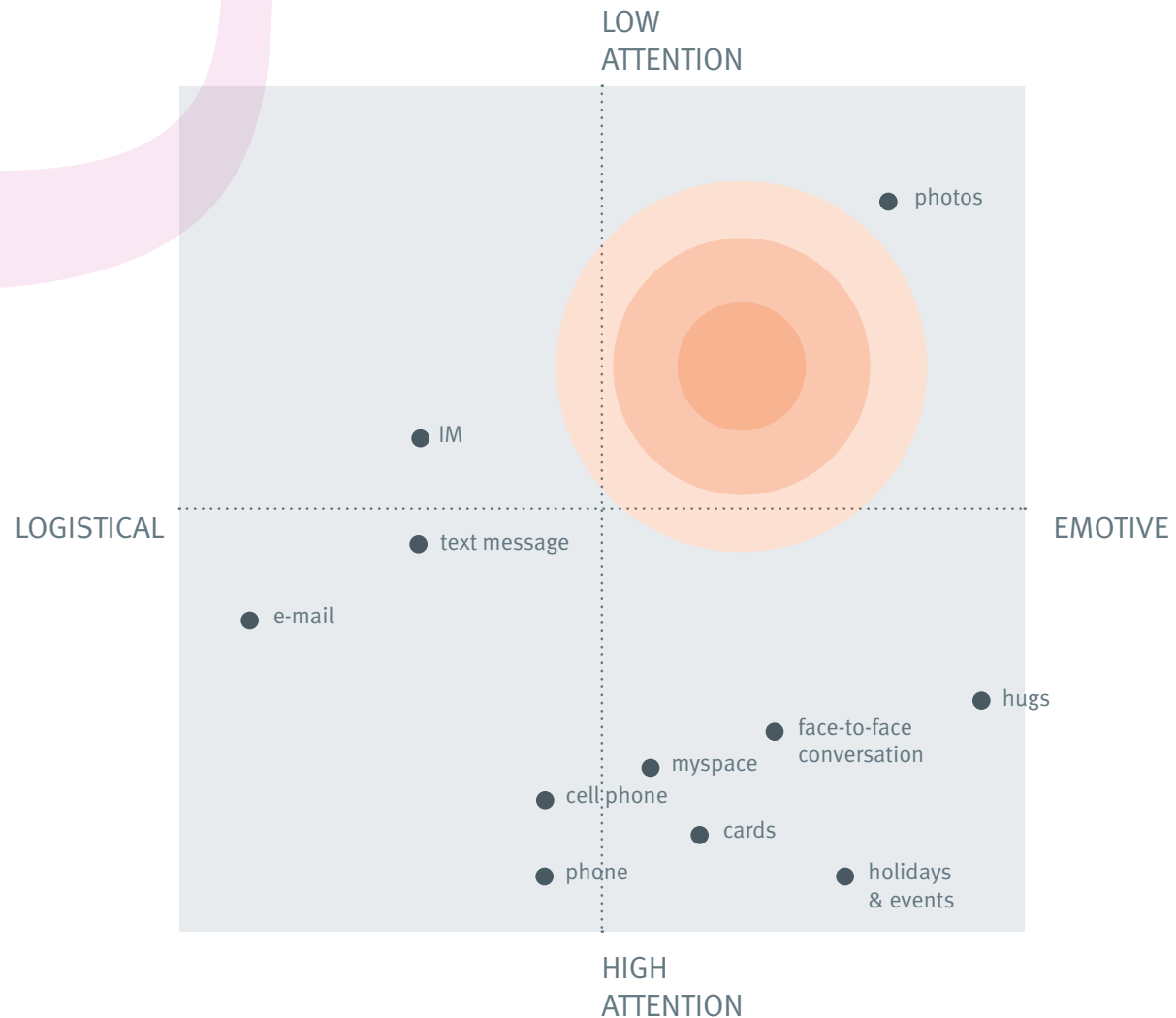
family photos & mementos



family phases

EXPLORATORY FINDINGS

Immersive research exploring what families say, make, and do revealed three fundamental themes in family connections: Individual versus Shared Activity, Emotional versus Logistical Communication, and Family Photos and Mementos. As families grow, they encounter phases in which different elements are more emphasized, but the themes are constant throughout.



attention & emotion

GENERATIVE FINDINGS

Participatory design methods led to insights into how families would want enhanced connections to look and feel. One key finding from this phase was that families wanted connections to be highly emotive. Yet most current modes of emotive communication require more attention than family members are regularly able to devote. Our solution is positioned to bridge the gap.



Our solution will use

non-verbal communication

to allow family members to express

real-time emotion and
create enduring memories.

This solution will: **provide** for enhanced expression & awareness of individual family members,

add emotive and memory-based dimensions to the home and surrounding environment, and

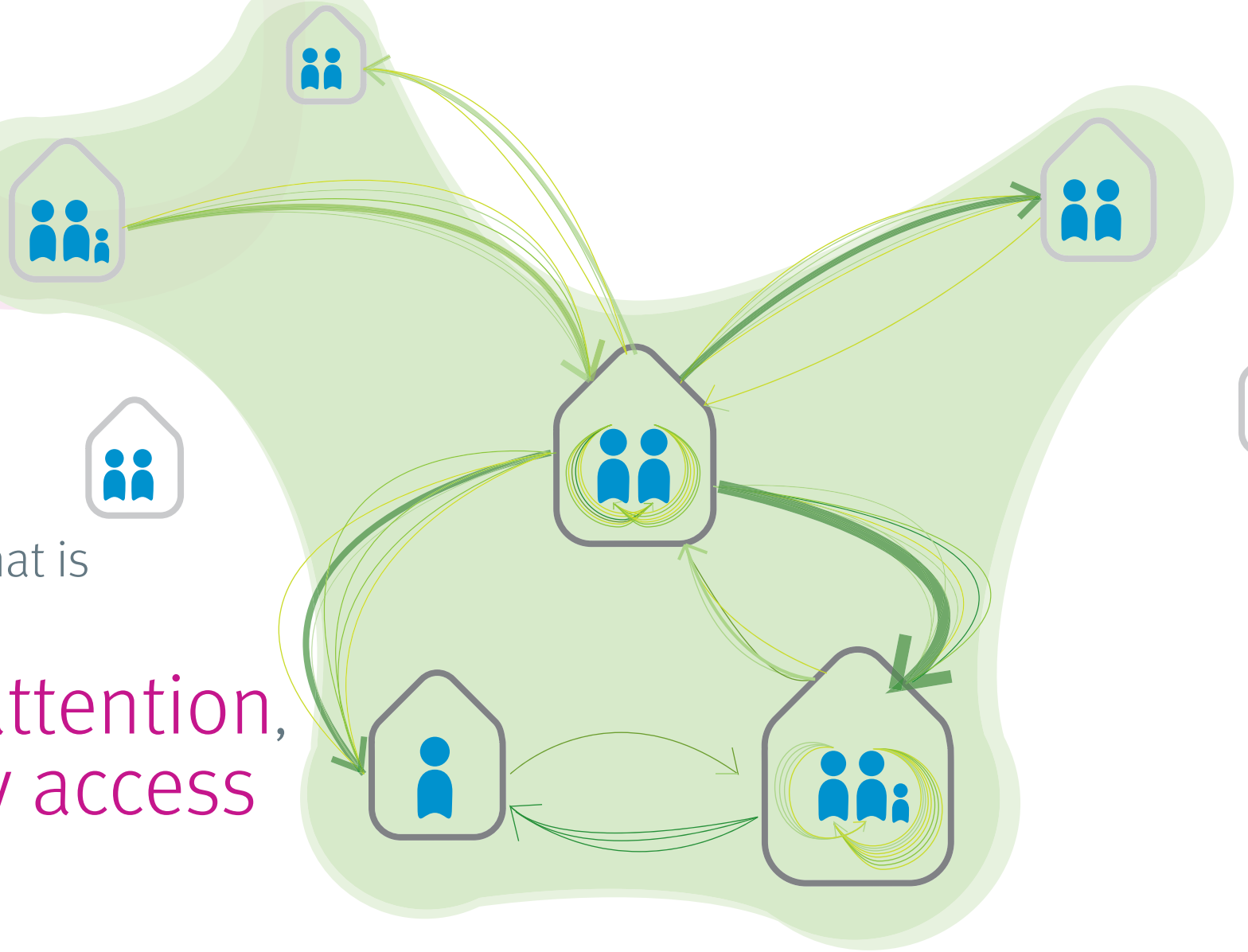
create a platform for fun, shared activity, even across distances.

design goal

MISSION STATEMENT

Based on insights from our research, we created a mission statement for the design solution. This statement guided the direction of subsequent research, concepts, and refinement.

a mode of connection that is
emotive,
low-attention,
and **easy access**

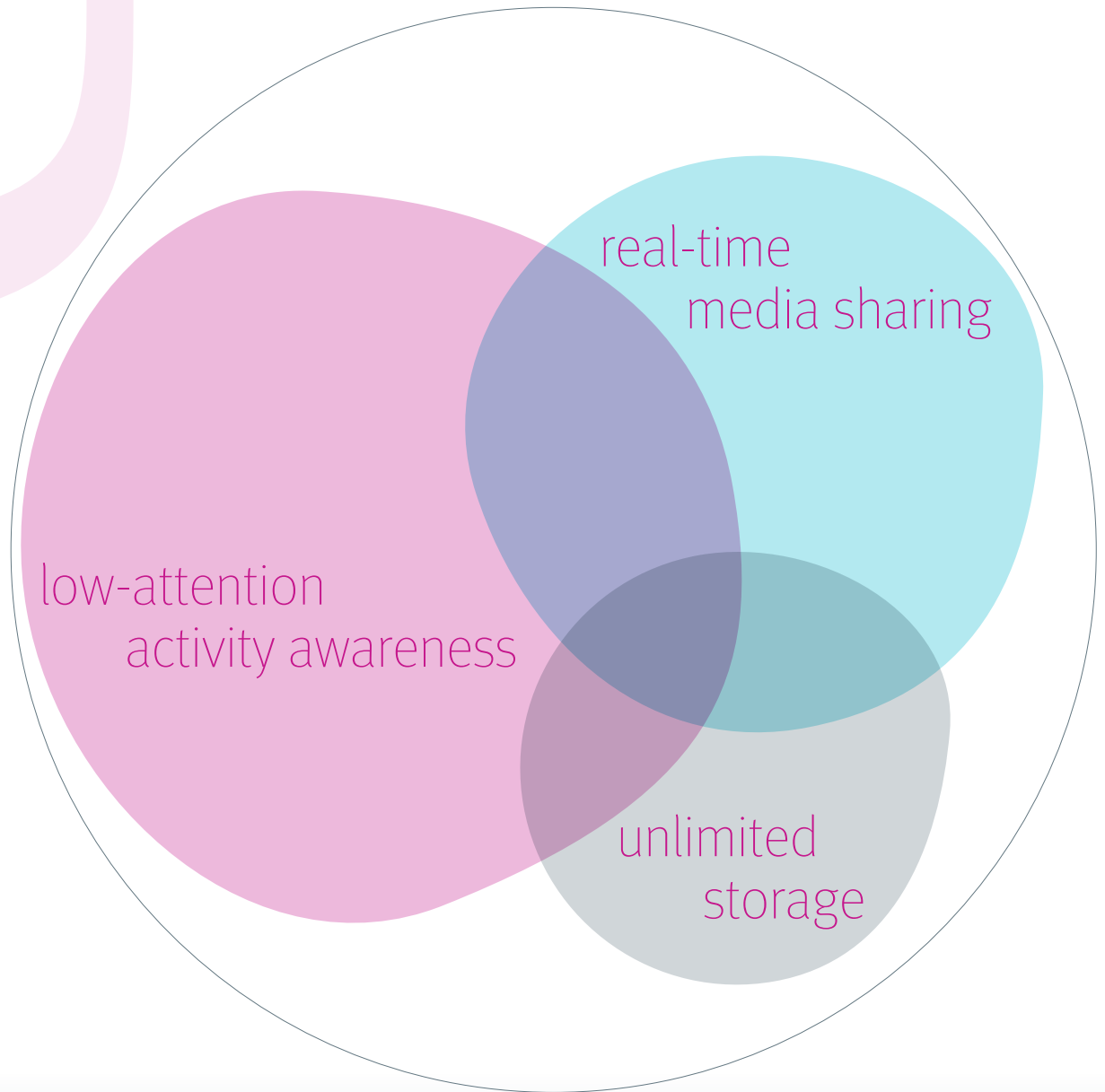


system model

LOW-ATTENTION AWARENESS

The **aura** system was developed to complement current modes of communication. Phone, e-mail, hugs, and kisses will remain, but our emotive network provides families with an additional inclusive layer of continuous, low-level, emotional connection.

enhanced
family
connection



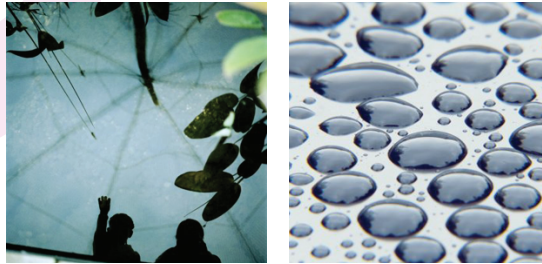
system features

CONNECTING FAMILIES

In addition to providing a sense of presence and connectedness through constant activity level awareness, **aura** also provides for instantaneous media sharing and unlimited file storage. These three capabilities combine to allow families to make, share, and relive memories together.



REFLECTIVE



FRIENDLY / CHEERFUL



MAIN COLOR



ACCENT



CUSTOMIZABLE



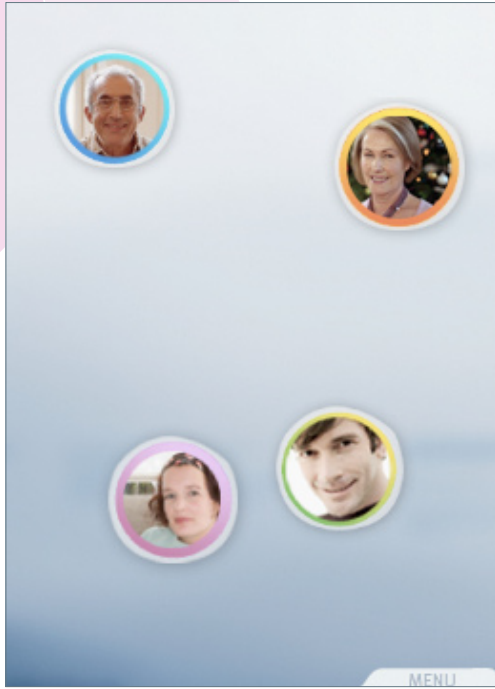
LOGO & ICONS: SUBTLE / APPROACHABLE / IMPERFECT



aura display

VISUAL LANGUAGE

Devising an appropriate visual language was a key element for enabling emotive communication. The mood developed for the **aura** application was soothing yet fun, with clear and approachable icons and customizable colors for the portal display.

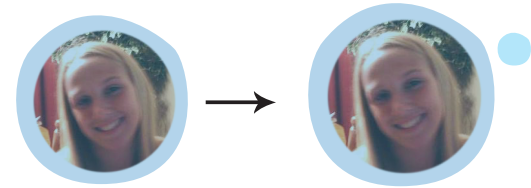


IDENTITY Each individual chooses his or her own photo to be displayed in the portal.

COLOR Each individual assigns portal colors for all the family members appearing on his or her display.

NEW CONTENT

When new media is added, a satellite indicator appears.



ENVIRONMENTAL ACTIVENESS

Opacity, color saturation, and circle pulse rate fluctuate with the activity of the surrounding environment.

[color]



[pulse]



PERSONAL ACTIVENESS

Speed of the circle changes based on personal activity.

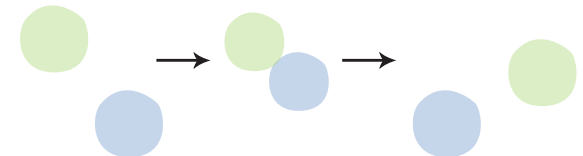
[speed]



COMMUNICATION PATTERNS

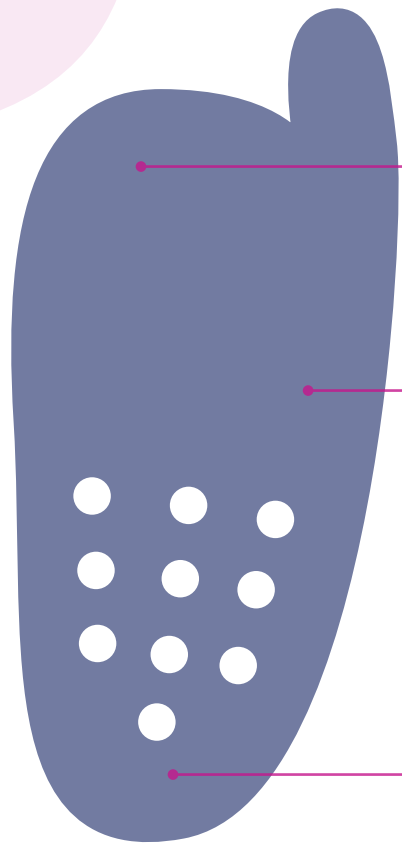
Frequency of bumping among circles varies based on the communication patterns between individuals.

[bumping]



aura display
MOTION AS AWARENESS

It was important to develop an appropriate visual metaphor—one that resonated emotionally but was also vague enough to ensure individual privacy. We settled on a display of family member portals that move differently onscreen depending on personal and environmental activity levels. By clicking the portal, it is possible to see individual media content.



camera senses changes in light for environmental activity level

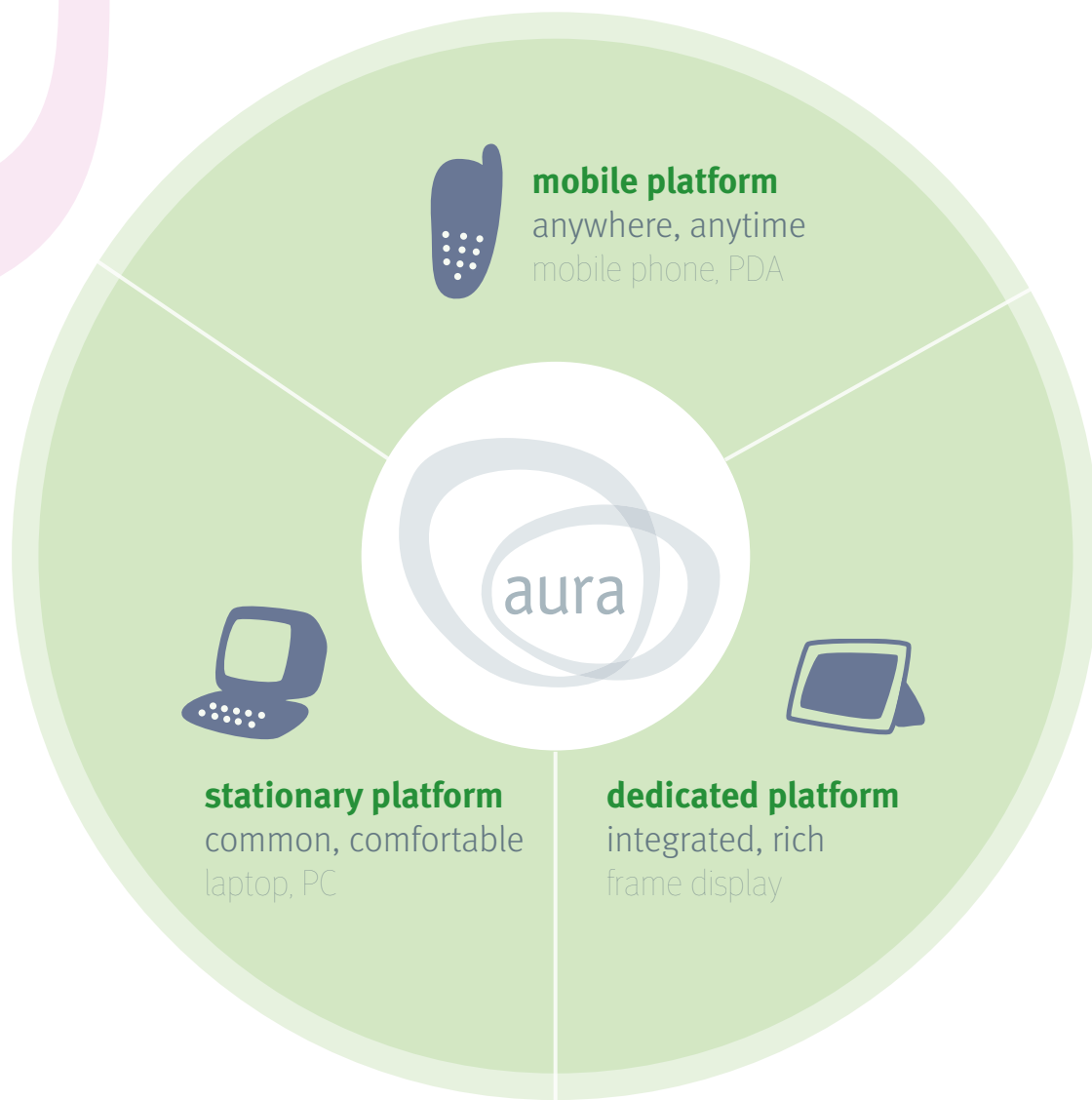
GPS detects changes in location over time for personal activity level

microphone senses changes in sound for environmental activity level

sensing activity

A STANDARD CELL PHONE

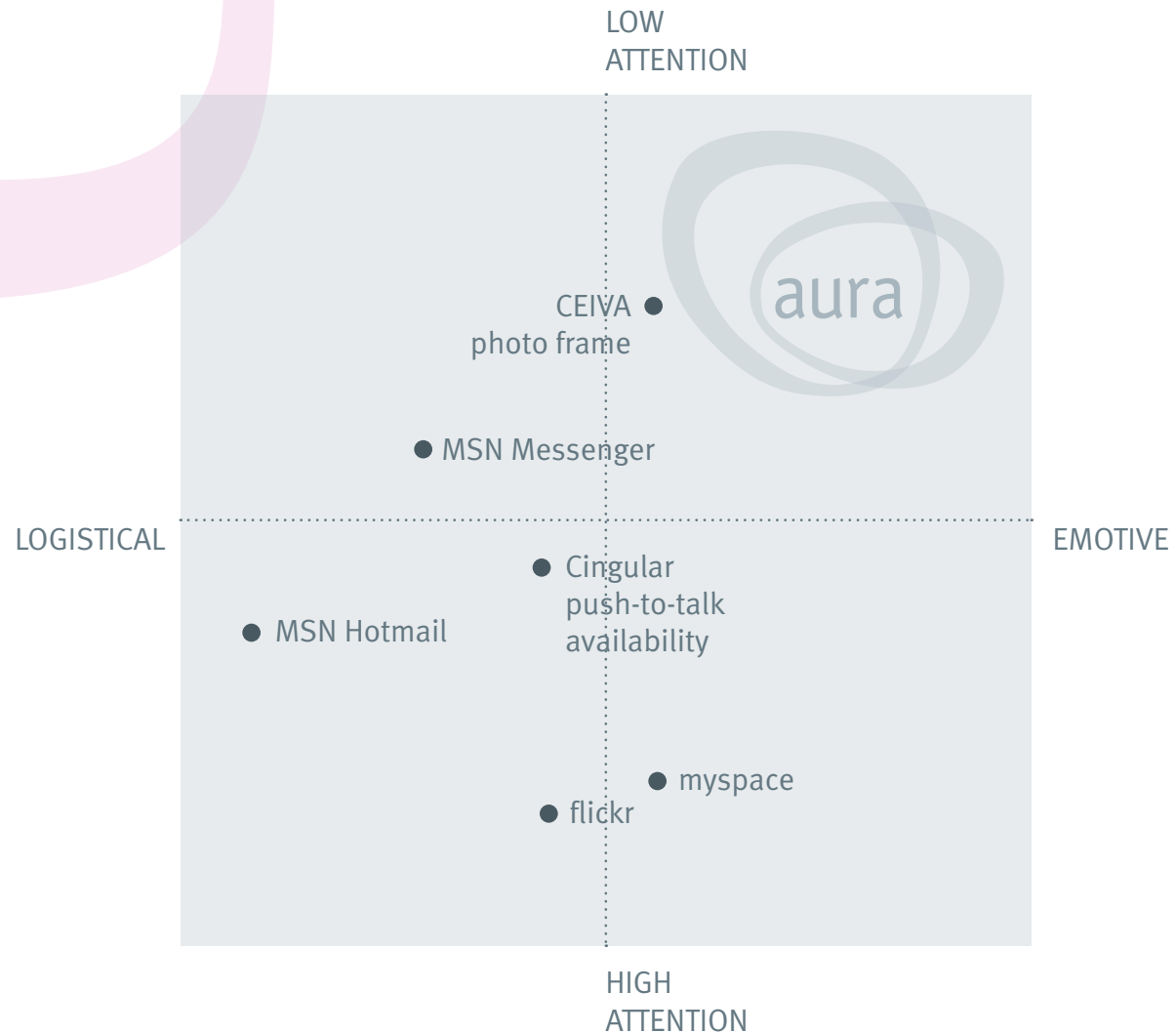
Data for the awareness display must be gathered in an effective but non-invasive way. Most people carry cell phones with them throughout the day, and many models are already equipped with hardware that can gather information about location, light, and sound. **aura** capitalizes on this as a simple way to gather continuous data on personal and environmental activity levels.



sharing activity

MULTIPLE PLATFORMS

aura integrates fully into daily life. The network is accessible through mobile, stationary, and dedicated platforms for continuous family connectedness at work, in the home, and on the go.

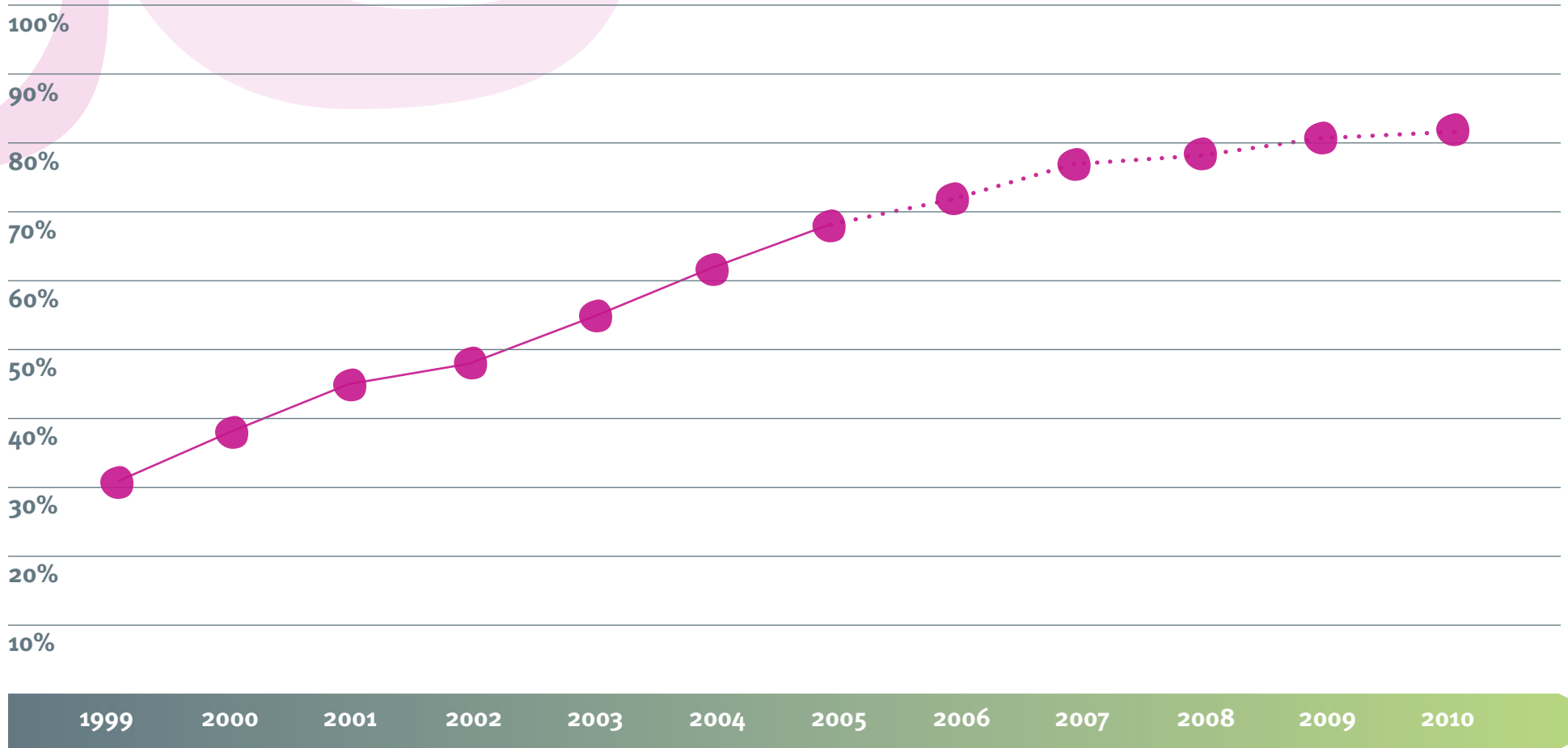


positioning

A MARKET FOR EMOTION

There are several photo sharing products and services on the market, as well as those aimed at providing awareness or availability information, but few that combine these. **aura** is uniquely positioned as a service that provides a real-time emotive connection with family members as well as media sharing capabilities.

percentage of U.S. population with a cell phone



business plan

CELL PHONE USERS

Projections based on data from the U.S. Census Bureau indicate that cell phones are still on the rise. By 2010, over 80% of Americans will own a cell phone. **aura** capitalizes on this trend, running on cell phones as well as stationary platforms and gathering family awareness information through sensors already built into standard phones.

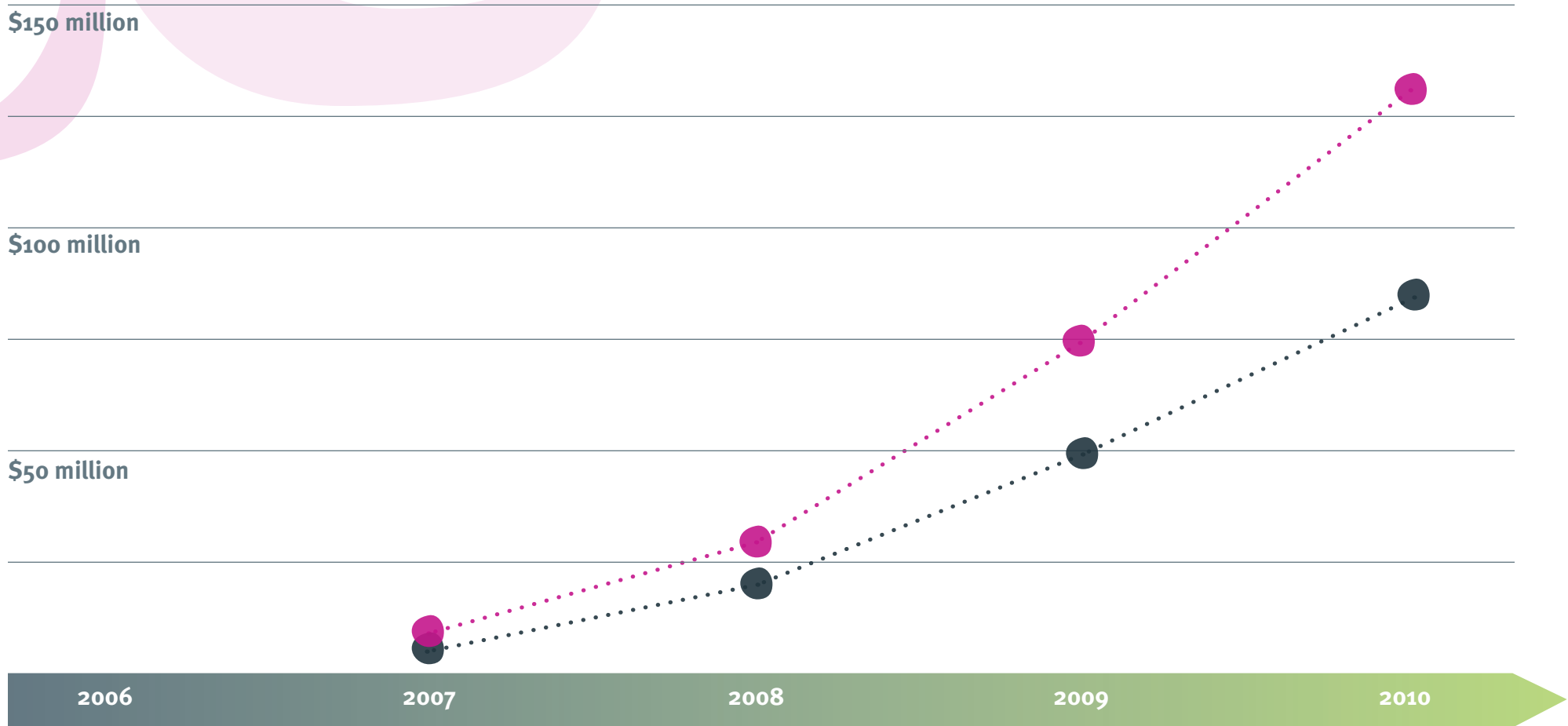
projected subscription revenues

\$150 million

\$100 million

\$50 million

- \$9 per month price point
- \$6 per month price point



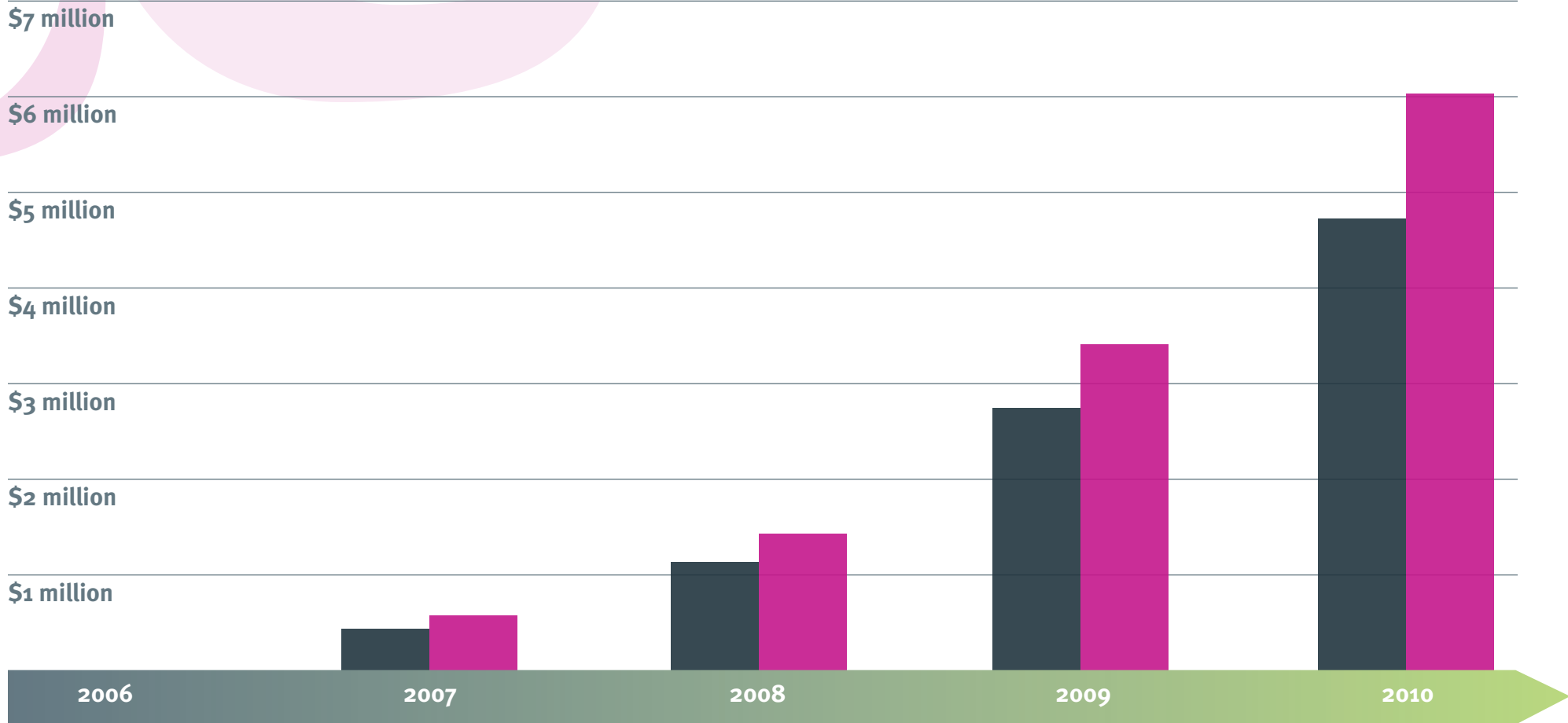
business plan

SUBSCRIPTION REVENUE

Based on adoption growing by 0.04% each year, **aura** will have more than one million subscribers by 2010. Depending on whether the subscription is priced at \$6 or \$9 per person per month, this would mean revenues in that year totaling \$86.2 million or \$129.3 million.

projected sales of
in-home display devices

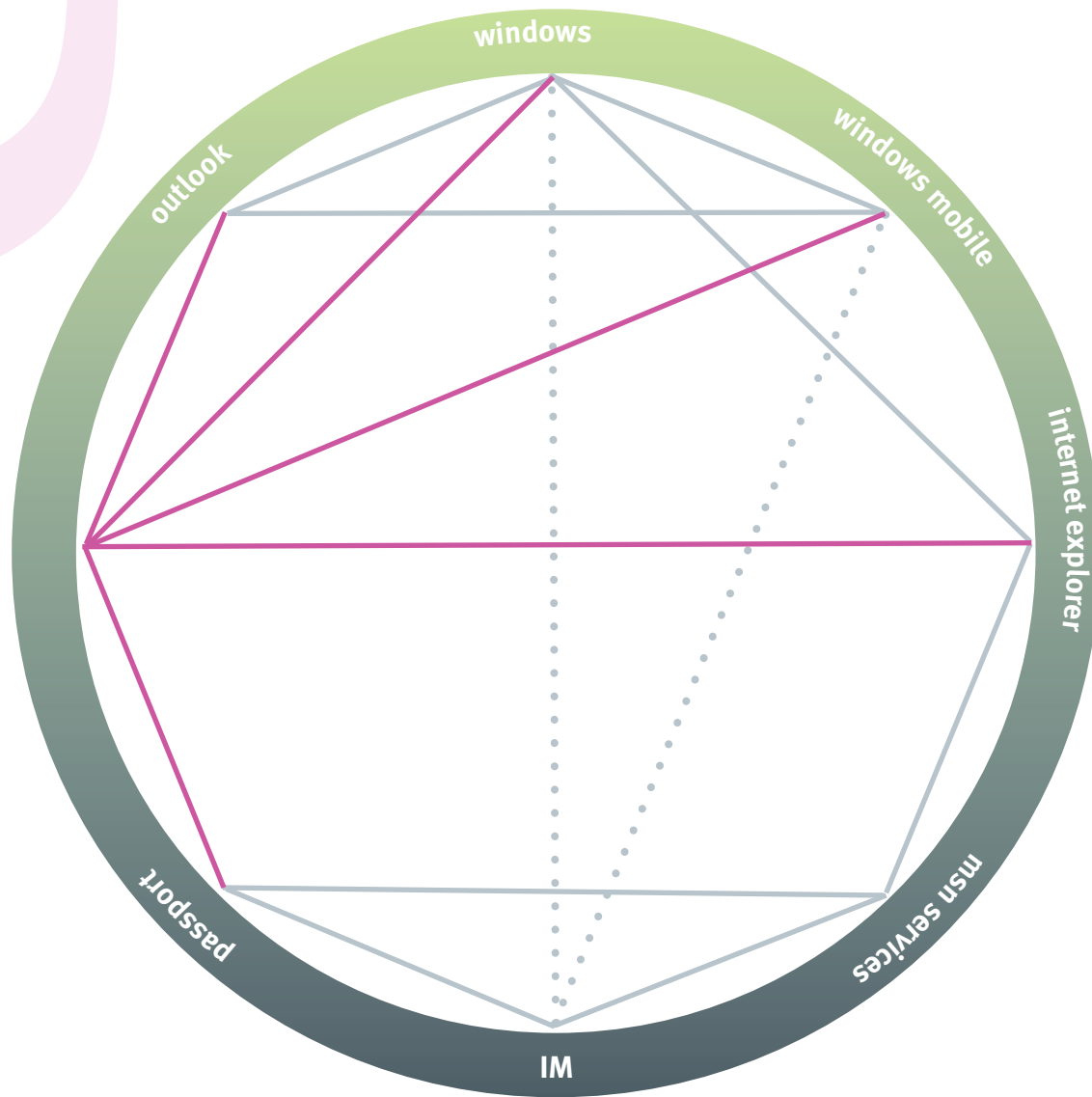
● \$250 price point
● \$200 price point



business plan

DEVICE REVENUE

In addition to the major revenue stream created by subscriptions, purchases of **aura** in-home display devices also add to the bottom line. Depending on whether these are priced at \$200 or \$250 each, revenues from sales in the year 2010 would total \$4.7 million or \$5.9 million.



why Microsoft

A GOOD FIT

aura integrates seamlessly into Microsoft's existing suite of products and services. Running on Windows and Windows Mobile platforms, a click of a button takes subscribers directly to their Outlook e-mail. In addition, research shows there is a growing market for family connectivity products, and **aura** will allow Microsoft to reach into family life, not just the office.



JULIA BJORNSTAD

AGE: 63

STATUS: married, to Robert Bjornstad for 37 years

LOCATION: Rockland, Maine

Julia feels a deep-rooted sense of commitment to her family and community. History and tradition are very important to her.

Despite being retired, she remains physically and intellectually active. She looks forward to holiday gatherings throughout the year.



AMY ROLLINS

AGE: 31

STATUS: married, to Michael Rollins for 4 years; 2 year old daughter Samantha

LOCATION: Cleveland, Ohio

A mother, a wife, a daughter, a sister, and a career woman, Amy is always on the go. She loves spending time with her daughter and watching her grow.

Making a positive impact through her job is important to Amy, but she sometimes feels guilty about bringing work home as much as she does.



RYAN BJORNSTAD

AGE: 29

STATUS: single

LOCATION: Silver Lake (L.A.), California

Ryan is passionate about the power of film to convey emotion to wide audiences. After graduating from college, Ryan stayed in LA to pursue a career in the film industry.

Working his way up by doing independent films, Ryan is finally getting his big opportunity to do a film for a major studio.

personas MEET THE FAMILY

Family members have differing communication needs and modes. Our personas were developed based on the findings from our exploratory and generative research. The scenario they enact focuses on Amy, but involves her mother, Julia, and her brother, Ryan, as well.



aura

a sense of presence

scenario

CONNECTION IN MOTION

To see how **aura** works and adds rich emotive connections to daily life, click the image above.

The background features several large, thick, abstract shapes. In the top-left and bottom-left corners, there are pink, curved, ribbon-like shapes. In the center-right, there are two overlapping, light grey, oval-like shapes. The word "aura" is centered within the inner oval of these grey shapes.

aura

a sense of presence